MACRO ANALYSIS OF CHILD LABOR AND SCHOOL ENROLLMENT

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Macro Analysis of Child Labor and School Enrollment

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This study analyzes the national characteristics that explain the prevalence of child labor and low school enrollments by using unbalanced panel regression analysis. This study contains 106 countries that have exhibited some degree of child labor between 1990 and 2003. The independent variables were divided into four categories; economic, political, educational, and socio-cultural.

Although the issues of child labor and low school enrollment are almost always discussed relative to economics, this study shows that the rest of the factors are also related to the rate of child labor and school enrollment rates. Economic development seems necessary in order to reduce child labor, improving educational systems and establishing educational policies appear to effectively increase primary school enrollment. Additionally, it is very important to consider political factors, such as the quality of governance, as well as economic development in order to increase secondary school enrollment. In addition, the study shows that child labor is more strongly related to secondary school enrollment than primary school enrollment.

According to the results obtained, the author proposes four policy recommendations. First, poverty reduction is very important and must be achieved by lowering fertility rates, improving income distribution, promoting female employment, and raising adult literacy rates. Secondly, because rural children are much more likely to be in the labor force and to drop out of school, especially at the secondary education level, it seems to be more effective to focus on rural areas by raising adult employment opportunities, increasing industrialization, reforming

curriculum to improve educational quality/relevance and reducing socio-cultural effects by awareness-raising campaigns. Thirdly, it is important to focus on female education. Negative socio-cultural effects on female education have to be controlled through awareness-raising campaigns and the promotion of women's advancement in the economic and political spheres. Lastly, additional efforts are necessary in order to reduce child labor and promote secondary education in African countries, especially those with French-originated laws. The results show that children living in those countries seem to suffer most from economic, political and socio-cultural disadvantages.

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1. INTRODUCTION

1.1 BACKGROUND OF THE ISSUE

It is a well-known fact that many children, especially those who live in less-developed countries, work full/part time, either paid or unpaid. Some of them combine school and work, and others are solely engaged in work without attending school. The definition of child labor is diverse. The term "child labor" is often considered harmful, abusive and exploitative employment, which sometimes deteriorate children's physical, mental, and psychological development, while "child work" is considered harmless and sometimes a learning experience of survival skills.[1] According to an ILO report (IPEC & SIMPOC, 2002), there are about 352 million children aged 5 to 17 who are engaged in some forms of economic activities in the world in 2000. About 211 million children out of this population are estimated to be in the age group between the age of 5 and 14. Another IPEC's (International Programme on the Elimination of Child Labour) study estimates 246 million children are child laborers, of which 186 million are below the age of 15, over 170 million children work in hazardous situations or conditions, about 8.5 million child laborers are involved in the unconditional worst form of child labor, and at least 1.2 million child laborers are victims of trafficking (IPEC, 2003)

[1] However, most research, especially quantitative studies regarding working children, does not distinguish child laborers and child workers. This may be due to the difficulty of clearly separating child laborers from child workers and, accordingly, to the lack of existing separate data for child laborers and child workers. It is much easier to distinguish child labor and child work conceptually, but doing so is much harder at the practical level.

It is widely believed that household poverty at the micro level is the primary cause for most child labor/work (Anker, 2000 & 2001; Anker & Melkas, 1996; Grootaert & Patrinos), and research on the severity of prevailing poverty in large parts of the less-developed countries tends to verify this assumption at the macro level. Therefore, until recently, the incidence of child labor was analyzed and discussed among both practitioners and academics mostly as an issue that resulted from poverty. However, as Myers (2001) points out, many anthropologists and economists have increasingly begun to doubt the credibility of this dominant poverty explanation for the incidence of child labor (e.g., Brown, 2001) because, as Anker (2000) argues, it is impossible for poverty theorists to "explain why the incidence of child labor varies across poor households within communities, across poor communities within countries, and across poor countries throughout the world" (p.257). For example, Sri Lanka, which is one of the low GDP countries, almost accomplished the universal primary education with lower incidence of child labor, while other countries with similar GDP still have much lower school enrollment rates with high incidence of child labor. Cingo, et al. (2000) also found by using surveys of India, Morocco, and Vietnam that although household income/expenditure significantly affect the incidence of child labor, the relationship between income/expenditure and the incidence of child labor is noticeably non-linear. The poverty explanation cannot solely and wholly explain those phenomena.

Child labor not only hampers children's physical, psychological and mental development, but it also often negatively affects their educational progress. Some children may drop out of schools before completion, and some may not even attend schools from the beginning because they have to work. Even though children attend schools while working, much research has

found that children's work negatively affects their academic achievements.[2] According to the human capital theory, education is an essential tool for individual human growth and national growth, both economically and socially. Thus, at the micro level, child labor seems to affect an individual academic achievement/attainment and consequently hampers household human capital accumulation, which would improve household economic condition. The incidence of child labor also seems to affect the school enrollment/attendance rate and decrease national human capital at the macro level. Child labor may be a temporary and easily accessible solution to gain additional income for families, but it is surely a detriment to families' well being in the long run considering what those children are missing while working, namely education. It is, therefore, important to investigate how to lower the level of child labor and to increase school enrollment rates for both national and household wellbeing.

1.2 PROBLEM STATEMENT AND RESEARCH QUESTIONS

Although the level of economic development of a country is often mentioned as a primary and major factor for the high incidence of child labor and low school enrollment rate as mentioned above, both the level of child labor and school enrollment rates significantly vary at a given level of per capita income across countries (Shelburne, 2001). Why do so many children work instead of or while attending schools in some countries in one hand, and much fewer children work and many attend schools in other nations on the other at the similar level of economic development? What other factors, in addition to the level of economic development, impact the level of child

[2] Child work, distinguished from "child labor", may not hamper children's physical, psychological, and mental development, but it still might negatively affect children's academic progress.

labor and school enrollment rates? Most previous studies about determinants of the incidence of child labor, as Shelburne (2001) points out, have focused on the microeconomic household characteristics that seem to influence household decision-making on children's time allocation (see Buchmann, 2000; Grootaert & Patrinos, 1999; Wolfe & Behrman, 1984), while there are few studies conducted focusing on the issue at the macro level. With micro level analysis, it can be difficult to investigate some of the factors such as influence of nations' commitment to elimination of child labor and promotion of education. My analysis, therefore, instead of focusing on household characteristics, focuses on what characteristics of a country can indicate the prevalence of child labor and the levels of primary/secondary school enrollment rates, by comparing 106 less-developed countries in which child labor was found between 1990 and 2003 according to the World Development Indicators.

Especially since the early 1990's, schooling has been paid much more attention to as one of the effective ways of reducing child labor and accumulating human capital, both of which are critical in the fight against poverty and economic development at both the household and the national level. Lack of access to quality education is considered one of the major reasons for children's work and school dropout. Although compulsory education is highly valued in the discussion of child labor as an effective strategy to eliminate child labor, there are few empirical evidences that show clear connections between the incidence of child labor and school enrollment. [3] The higher the rate of child labor is in one country, the lower the primary/secondary school enrollment rates? What about the longitudinal effect? If the rate of

[3] Ravallion and Wondon (2000) find that the incidence of child labor is not a major reason for low school attendance rate in Bangladesh by studying Food For Education Program.

child labor decreases do primary/secondary school enrollment rates increase? Or if primary school/secondary enrollment rates increase, does the rate of child labor decrease?[4]

In addition, the effect of the government expenditure on education on both the rate of child labor and primary/secondary school enrollment rate has been largely ignored. It may not be appropriate to assume that quality of schooling can be improved with high expenditure on education, as government expenditure on education, in many countries, "are often used inefficiently, providing school buildings where they are unneeded, paying teachers that are unqualified or who do not perform, and providing school supplies that are inadequate and ill-timed" (Alderman, Orazem, & Paterno, 2001, p.305). In many less-developed countries, quality education is not assured, returns to education tend to be low, and human capital may not be effectively accumulated through schooling. Under this circumstance, regardless of the government expenditure on education, schools cannot attract children and their parents. Again, few empirical studies have been done focusing on the impact of the level of government expenditure on education (primary and secondary school level) on the rate of child labor and school enrollment rates. The higher the government expenditure on education is, are school enrollment rates higher and is the rate of child labor lower? If the government increases the budget on educational investment, do school enrollment rates increase and/or does the rate of child labor decrease?

My study will be conducted at both primary and secondary school levels and for both female and male students in order to investigate if there are any similarities and differences among primary and secondary schools and among females and males. By finding those

[4] Ravallion and Wondon (2000) find that increasing the primary school enrollment rate does not ensure the decrease in the rate of child labor as expected.

similarities and differences among them, more compatible policy recommendation targeting each sex at each level may be possible.

As mentioned above, even though some researchers distinguish child labor and child work, I will use the term "child labor" as an indicator of child employment, which includes both child laborers and child workers in my study. This is because there exists no separate quantitative data for child labor and child work.[5]

Thus, my research questions are:

1. Are there any relationships between school enrollment rates and the rate of child labor;
2. What country characteristics can explain the prevalence of child labor and low school enrollment rates;
3. Does the level of government expenditure on primary and secondary education affect the rate of child labor and/or primary and secondary school enrollment rates;
4. Are there any similarities and differences of national characteristics that affect school enrollment rates between primary and secondary levels;
5. Are there any similarities and differences of national characteristics that affect school enrollment rates between females and males?
6. Which of these four factors: economic, political. Educational, or socio-cultural, is most strongly related to child labor and school enrollment rates?

1.3 SIGNIFICANCE OF THE STUDY

Understanding the macro-level relationship among primary and secondary school enrollment rates, the rate of child labor, and the national characteristics that can indicate high level of child labor and lower school enrollment rates may help international, national and local governments establish effective policy interventions and formulate more efficient plans for future educational expenditures. Also, by knowing what national characteristics are strongly or weakly related to

[5] This does not imply the author pays less attention to the definition of child labor and child work. The author understands that working experience for children can be essential, especially for the development of their survival skills.

the incidence of child labor and school enrollment rates, it can be examined whether or not the existing policies and programs, which summarized in the next chapter, are really effective.

2.0 RELATED LITERATURES

Since the purpose of my dissertation is to influence international/regional/national/local educational, economic, and/or labor policies related to child labor and school enrollments, it may be wise to review overall discussions related to child labor policies. I would like to: first, introduce the theories that I use in order to frame my study; second, discuss existing perspectives towards children and the issue of child labor that greatly influence the framing of policies and various leading agencies of those policies; third, analyze existing actual policies/programs/projects related to child labor and school enrollment based on the organizations'/agencies' perspectives discussed in the earlier section of this chapter; and lastly, summarize the rationales and factors influencing the prevalence of child labor and low school enrollment rate in less-developed countries.

2.1 THEORETICAL FRAMEWORK FOR MY RESEARCH

This subsection reviews theoretical frameworks that can explain the relationship among national characteristics, incidence of child labor and school enrollment rates in less-developed countries. The theory that seems to most reasonably explain the phenomena of the high level of incidence of child labor and low school enrollment rates in many less-developed countries is the institutionalist development theory. The theory that explains the importance of education for the

national development is the human capital approach. This subsection explores these two theoretical perspectives and hypothesizes advantageous or deleterious country's characteristics that account for the high level of child labor and low school enrollment rates that are common in many less-developed countries.

2.1.1 Institutionalist development theory

One of the most prominent and influential institutional development theorists, Gunnar Myrdal, sees economic development in a cumulative process – "meaning that secondary changes usually have the same direction as the primary ones and not the opposite one" (Myrdal, 1956, p. 12), while most of other economists see it as the automatic self-equilibrating process. By saying this, he means that the path that many less-developed countries are taking does not usually lead them to developing/improving their nations economically and socially, but rather, to worsening the situations. Without changing its development strategies, any kind of economic stimulation would not help a country flourish, but would worsen its situation in less-developed countries, while same stimulation could facilitate national development in developed countries. Thus, if some economic stimulation occurs in a developing country, the poor become poorer and the rich become richer. This phenomenon widens the gap between the poor and the rich at both the individual and state levels, unless effective political interventions change the direction of development (Acedo, 1999).

Many institutionalists pay much more attention to the influence of cultural effect when framing their development theories (Dugger, 1987). This is one of the most distinguishable characteristics of this theory from other economic theories. Myrdal argues that the people in developing counties, "would on average be ridden by more primitive variants of religion,

sanctioning traditional mores by taboos and functional magic, and they would be more superstitious and less rational generally" (1956, p.30). Those cultural elements of less-developed countries have tremendous negative impacts on political/economic activities and prevent national economic growth/development in less-developed countries. Although the institutionalist development theory greatly values social and cultural influences on dynamic national economic development discussion, they still believe in the strong impact that socio-economic and political institutions and systems have, while other economic theories tend to ignore the cultural effects on economic development and rely solely on market power (e.g. some dependency theories only focus on an economic mechanism for national development) or rely only on cultural change and ignore economic and/or political change (e.g. modernization theory) as the key to development (Clark, 2000). In short, the influence from the whole society – its cultural, social and political situation – on national economic development is unavoidable and should not be ignored. By pointing to less-developed countries' situations, Myrdal explains that many less-developed countries have a weaker position in the world socio-economic system and, moreover, have weaker internal institutional structures, which keep those countries in a self-enforcing downward path, while most developed countries have a self-enforcing upward development path (Preston, 1996). North (1990) also explains the reason of inefficient development in many less-developed countries due to the institutional constraints, both formal (political/economic) and informal ones (social/cultural), in political/economic activities that do not encourage productive activity.

As explained, institutional development theorists define that economic development "is not merely a matter of more capital, or more acres, or more coal in the ground, but also of growth of effectiveness of management and of manual effort through better education, better health, motivation, and better political and social organization" (Myrdal, 1956, p.13). Therefore, for

less-developed countries to develop, they would have "to struggle on a broad front of social, economic, political and cultural reforms so as to redirect the socio-economic system onto an upward path of development" (Preston, 1996, p.201). Although governments in many less-developed countries tend to pursue strategies to develop their economies (Wood, 1993) by focusing only on an economic sector of a country, leaving out other sectors behind, it is hardly possible, according to institutional developing theorists, for less-developed countries to achieve sustainable economic development without taking care of other political, social and cultural factors of their countries. As Wilson (1999) states, investments in physical capital, technology and labor are necessary, but they are insufficient for national development since those factors are also interrelated with other institutions, such as political and cultural ones. Without understanding all the elements' interrelationships, sustainable national development cannot be expected.

Institutional theorists consider states the key agencies that play a critical role for national development (Preston, 1996) by setting up and implementing effective policies and enacting strict laws that can change their development track onto the right direction and facilitate pro-progress development. As North (1990) argues, effective and efficient political institutions are necessary as well as economic institutions for national growth. However, few governments in less-developed countries are democratic in a real sense, and, therefore, they have always failed to strictly enforce adequate, effective formal rules that could reduce the influence of informal socio-cultural norms, rules and traditions, all of which delay and/or hinder national growth (Chu, 2003). Thus, many of those governments have missed opportunities to organize strong and effective institutional systems and stable interrelationship among agencies of those institutions

that are critical for economic development, and those countries are having a hard time changing their development direction.

As Chu (2003) discusses, less-developed countries have to go through a long process of institutional development. This process takes time because "intellectual transplantations of informal norms" (p.15) are difficult and take much longer than importing technical expertise (formal institutions) from developed countries, which is relatively easy and quickly adopted. He also states that this intellectual change is the most difficult but critical issue that less-developed countries have to face in order to establish an economy based firmly on rules that can promote economic growth/development.

The issues of child labor and low school enrollments are two of the major problems that many less-developed countries face. The incidence of child labor and low school enrollment rates are phenomena caused by the interrelated economic, political, social and cultural conditions of a country. Therefore, it is important for a country to reform social, economic, and political sectors and take into consideration cultural elements in order to decrease child labor and increase school enrollment rates for national development.

2.1.2 Human capital theory

The human capital theory is one of the most popular and important theories that can be used on the discussion of educational investment and economic growth. The human capital theory greatly values education and schooling. This theory argues that obtaining education eventually increases productivity, labor quality and income at both individual and national levels (Schultz, 1964; Gillis, Perkins, Roemer, & Snodgrass, 1996). At the macro level, as Becker (1997) discusses, economies tend to grow faster when the countries have wider educational bases and

the majority of their populations are literate. At the micro level, Jensen & Nielsen (1997) describe how years of schooling can be used as one of the proxies for earning potentials at the individual level, according to this theory.

Becker (1997) mentions the relationship among education, national economic development, and child labor. According to his discussion, national economic development will consequently eliminate child labor as both nations and individual families will eventually become wealthier.

Based on these discussion, it can be said that education is a critical factor for a nation to be economically developed and that the more investment in human capital by sending children to school at the micro household level and by providing more and better quality education at the macro national level, the lower the level of child labor will become. In other words, to reduce/eliminate child labor, therefore, the educational sector can play a critical role in saving children from deteriorate work settings in the short run and in developing nations economically in the long run

2.2 PERSPECTIVES OF CHILDHOOD AND CHILD WORK AND CONTRIBUTING AGENCIES IN CURRENT DEBATES

Child laborers and children workers have existed in the world for hundreds of years. Until the 1990's, issues surrounding children, especially issues of child laborers and working children, were largely ignored both internationally and nationally. In the 1970's, for example, child labor in most parts of the world was assumed to be prevalent as a part of traditional culture (Lieten, 2001). There was little doubt about using child laborers at that time. Both in the 1970's and

1980's, there was still little attention drawn on the issues around children. The issue of child labor gradually held much more attention due to deteriorating economic conditions in less developed countries and the globalization of capitalism (Cunningham, 2001). Radical changes in economic and social conditions of the world helped rapidly transform people's views about children from a pure economic perspective to a humanistic one. After the establishment of the United Nations Convention on the Rights of the Child (CRC) in 1989, with the rising interest in human rights in general and with the movement for fair labor standards in the global economy, academics and various organizations, including United Nations agencies and domestic and international NGO's, started to pay much more attention to the issues children have faced (Fyfe, 2001). Since then, those various organizations have been vigorously devoting themselves to advocating new concepts related to children's rights, welfare, and work. Different agencies have helped to improve children's lives in different ways by improving the conditions where children live. They have contributed not only to improving the conditions in various ways, but also to creating and advocating new ideas and concepts related to children such as child rights and welfare, as well as to re-visiting and re-considering the conventional concepts such as childhood and child work. Accordingly, many different perspectives related to children have been conceptualized and embodied in different national and international policies and programs.

Unfortunately, however, national governments in most of the countries in the world have failed to be leading agencies to improve the environment surrounding children, to promote universalization of basic education, or to eliminate child labor. UNICEF expresses that many governments in the world have ratified the CRC without any serious commitment to real change in children's lives (UNICEF, 2001).

Currently, international organizations that are responsible for children in various ways, such as UNESCO, UNICEF, World Bank, ILO, and USAID, and some major international NGOs such as the Save the Children Alliance are the major agencies that internationally promote and advocate new views of childhood and new values of children. These groups also have influence on national governments' policy-makers and public opinions in cooperation with smaller local NGO's in the world. Although those agencies have already collaborated in some ways, reinforcement and further expansion of inter-agency cooperation both at the international and national levels are essential along with the collaboration between those agencies and local NGO's in order to abolish child labor and improve the environment around children more effectively (Fallon & Tzannatos, 1998; IPEC, 2003).

2.2.1 Current major perspectives and leading agencies

As mentioned previously, there have emerged many new ideas, perspectives, and opinions in order to improve the environments surrounding the children in the world, especially working children. According to IPEC (2003), the rationale for eliminating child labor seems to come from either economic perspectives or children's universal rights perspectives. Since Myers (2001) categorizes existing perspectives in an organized and comprehensive way based on how children, childhood and child labor are defined, the discussion follows his categorization with some modification.

2.2.1.1 Protectionist (abolitionist) perspective

According to Myers (2001), many national governments hold this perspective and have framed their national policies for child labor within this perspective. This perspective stems from two

different concerns: right based humanitarian concern and economic concern. Humanitarian concern on children's welfare is originated in the European cultural notion of childhood as a work-free period of life and a period of protection (Lieten, 2001; Myers, 2001), and as a period of happiness and dependency (Cunningham, 2001). Within this framework, children are seen as vulnerable, innocent, and ignorant of the world and need to be protected by adults (Myers, 2001; Salazar, 1991). Participation in economic activity is seen as harmful for children, and in order to let children develop fully they must be excluded from labor force. On the other hand, the perspective with economic, specifically labor market concern, responds to the fear that child laborers would displace adult workers with lower wages, increase adult unemployment and underemployment, worsen the working conditions, and lower the adult wages, which would eventually perpetuate poverty or even worsen/deepen working class poverty (Myers, 2001; Levinson, Anker, Ashraf, & Barge, 1996).

The advocates of this perspective, whether from humanitarian concern or from economic concern, assert that children have the right not to work and object to children's participation in economic activity, whether it is full-time or part-time. This perspective does not believe that there is any positive effect gained from children's work experience, such as that work can boost self-esteem and instill responsibility and that work is used as a way of socialization (UNICEF, 1997; Collins, 1983). This perspective also forgets to consider that work experience also often provides children with their necessary survival skills in their communities. The purpose of schooling is, according to this perspective, therefore, not only to increase the knowledge and skills of children but also to keep children out of the labor market (Myers, 2001). Schooling and work are considered to be mutually exclusive, and work is considered to interfere with educational achievement within this framework. In order to achieve the goal, which is

abolishing child labor completely, a combination of compulsory education law to keep children in school settings and legislation of some minimum age for entry into the labor force to control child employment is often implemented as a strategy.

While this approach can save severely abused child laborers, many of whom work in sweatshops or whom are categorized as bonded laborers, it tends to ignore the fact that in many cases children's financial contribution to many families are critical for survival and that most of the children who are called child laborers or child workers combine school and work. Strict enforcement of compulsory education may endanger the welfare of poor families whose children's financial supports and contributions are critical (Fallon & Tzannatos, 1998). In addition, many children also have to work in order to attend schools, as Siddiqi and Patrinos (1995) mention that abolishing child labor may hider educational attainment. Also, state-legal remedies tend not to be effective beyond the formal sector (Myers, 2001) although many child laborers are employed in the informal sector. Moreover, there is little evidence of the negative influence of the children's economic participation in adult labor market (Lieten & White, 2001; Myers, 2001). Another important issue is that this perspective does not accept the idea that learning and acquiring skills not only occur in the classroom but also outside, such as through children's working experience. This has been widely supported by advocates of other perspectives for a long time. Lastly, this approach solely blames children's work as an interference of their educational achievement without paying enough attention to school quality, while much research and experience show that learning and school attendance also greatly depend on how good schools and education provided are (Anker, 2000).[6] Considering these, this

[6] School/education quality is an important issue in the discussion of child labor and education. It tends to be carelessly assumed that providing good school/education quality implies that students are provided higher academic that can be measured by exams. Although it is one important way of measuring the school/education quality, the

approach may not be powerful enough to improve the reality except for children who are severely abused and damaged.

2.2.1.2 Human capital perspective

World Bank, UNDP, ILO, many economists and educators, and various employer associations overall seem to support the human capital perspective (Cunningham, 2001; Myers, 2001). Within this perspective, childhood is seen as a preparation period for becoming a productive adult by acquiring skills and knowledge (Anker, 2000). Child labor is always discussed in relationship with national economic development. It is a product of economic underdevelopment at the macro level and prevailed mass poverty at the micro level. The discussion pays little, if any, attention to the issue of children's rights, although it is adamant that all children under any circumstances should receive education (Cunningham, 2001; Myers, 2001). Children are seen as future adult workers. Educating children is, therefore, seen as human capital accumulation for the future. Thus, the biggest concern within this framework is that hazardous and abusive forms of child labor as well as child labor that interfere with school attendance and performance may eventually decrease long-term national economic growth and development (K. Basu & Van, 1998) since they hinder human capital accumulation. Also, entering into the labor force at too young an age is considered detrimental, making children unfit for an appropriate role in their adulthood due to psychological and physical abuses that they have received and lack of education (Cunningham, 2001).

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relevance of education to children's life styles and necessary skills in their future also needs to be carefully considered. In reality, few working children and their families can afford to obtain higher level of education. Moreover, formal education, due to the irrelevance of its contents from children's lives, usually does not help children find jobs. For those working children, education that can be integrated into their life style seems more important than conventional formal education, which tends to be irrelevant to their lives so that obtaining education could facilitate families' productivity.

Child labor is also a cause of poverty as well as a product of it. Due to prevailing poverty, children have to work for family survival. This hinders human capital accumulation for the future, which will perpetuate poverty from generation to generation. Thus, eliminating poverty and enhancing national economic growth (GDP growth) by educating children, future adult workers, are the major remedies and goals of this perspective. Contrary to the protectionist perspective, this perspective supports the idea that learning and skills can be acquired both through formal schooling and through experience of work and life (Anker, 2000). In addition, this perspective has no objection to children's work unless it prevents children from receiving education. Apprenticeship and other work arrangements that transmit income generating skills, for example, are also considered education for children (Myers, 2001). Part-time jobs that do not stand in the way of receiving education are also encouraged, especially among children from poor families.

Policies in this framework involve subsidization of school expenses, school lunch programs, school-study arrangement, creation of flexible curriculum and school calendar, provision of income-generating opportunities for parents, enhancement of quality education and quality schooling through teacher training and improvement of learning materials, and so forth (Anker, 2000; Myers, 2001). The purpose is to make education more accessible and more attractive to all children. Although this perspective does not limit educational opportunity within formal school settings, it seems that advocates of this perspective are in favor of formal schooling rather than non-formal education.

This perspective has brought a new view of children and child work into the international debate. Contrary to the traditional protectionist view of child work, which is that work destroys children's chances of receiving education, child work, within the human capital perspective, is

seen as one way of learning; certain kinds of child work are even encouraged. Work can have a positive impact on children and a society. Working children are not just being abused and exploited; some of them are also seen as potential contributors to economic development at both national and individual levels (Myers, 2001).

Although this perspective has contributed greatly and successfully to promoting formal schooling and widening the possibility of working children, blindly trusting and believing the goodness of this perspective can be misleading. First, there seems to be too much faith and trust in education, especially formal schooling for its economic returns (Myers, 2001). Receiving education alone does not always bring about economic growth both at the micro (individual) level and the macro (regional or national) levels. Kerala, one of the India's states, is a good example. Although the state has achieved almost universal basic education, it has not led to economic growth and has not improved people's financial situations. The GDP is still fairly low compared to countries that have achieved similar educational attainment, although its social development is fairly outstanding. Also, in reality, good quality of education is seldom provided in many places, especially in rural areas in less-developed countries.[7] Second, there also seems to be too much faith in the virtue of economic growth. Economic growth at the macro level does not assure a decrease in the number of child laborers and improvements of the environment surrounding working children. Reports from AusAid[8] reveal, by studying the Philippines' case, that child labor does not necessarily decrease with economic growth of the region or country (cited in Burra, 2003). Due to rapid, less-organized economic development, more children actually became involved in labor and worsened their working conditions. Lastly, there is a

[7] Attending formal school does not always necessarily mean accumulating human capital (see Footnote 6). As discussed above, what is learned and obtained through formal education is a key to human capital accumulation.
[8] AusAid. (1997). Child Labour in Asia: Some Perspectives on Selected Countries, *International Development Issues*, 49.

increasing doubt in poverty alone as a direct cause of child labor, especially among scholars (Brown, 2001; Cingo, Rosati, & Tzannatos, 2000; Ravallion & Wondon, 2000; Weiner, 1991).

2.2.1.3 Social responsibility perspective

This perspective is largely supported and shared among various domestic and international NGOs that have enthusiastically devoted themselves to protecting children and improving their lives. Within this perspective, according to Myers (2001), the issue of child labor is discussed as a product of social inequality rather than economic underdevelopment. Therefore, child labor is not solved merely by reduction of poverty or elimination of child employment. Advocates of this perspective blame social systems which have been created in favor of national governments and elites for prevailing economic, cultural, and social inequality and social exclusion of the disadvantaged (Siddiqi & Patrinos, 1995; Weiner, 1991). Working children are one of those victims of the exclusion of the prevailed social systems. Thus, advocates try to facilitate much greater social inclusion of those who are marginalized and disadvantaged, including working children, to solve the problem.

In order to make this inclusion happen, it is important to change the social and cultural values not only among the disadvantaged, but also in the whole society. Common forms of empowering and bringing solidarity among the excluded are educating and mobilizing the disadvantaged including working children, their families, and a whole community (Myers, 2001). In addition to empowering the disadvantaged, political mobilization is necessary in order to make the national government more responsive and responsible and to make the society more compassionate and concerned, which may eventually push unwilling governments to take an action (Keck & Sikkink, 1998; Myers, 2001). Sensitizing the broader society, usually through media such as TV, radio, and newspapers, is a powerful and influential tool to mobilize the

whole society (Keck & Sikkink, 1998). Mobilizing both the disadvantaged and a whole society require grass-root initiatives, in which NGOs have a critical role to play, since especially local domestic NGOs often have detailed knowledge and information on local conditions and they tend to be much closer to local people (Anker & Melkas, 1996).

One of the most important contributions of this perspective is that it brings social factors as causes to the issue of child labor which tends to be discussed from the economic point of view. However, there seems too much focus on social factors without paying enough attention and consideration to economic factors (Myers, 2001). Balancing both social and economic factors to analyze the issue of child labor is essential in order not to be too unrealistic. Also, though their activities have been much more empowered and become influential by cooperating with international organizations and international NGOs through transnational advocacy networking, as mentioned, their major weakness is that most of their programs are much easier to implement at the micro level, but much harder at the macro level (Myers, 2001).

Different from the first two perspectives, this perspective treats children as more active participants. Empowering children is believed to contribute to improving their own lives. Educating children is neither merely a protection nor an investment for the future. Children are seen not only as social products, but also as powerful contributors to solving the problems (Lieten & White, 2001).

2.2.1.4 Child centered perspective

This rights-based perspective has been developed and growing rapidly with concerns about conditions that impair children's growth and development and violate their basic rights during the last decade. It has been advocated by UNICEF as a leading agency as well as other international rights-based NGOs such as Save the Children Alliance and many scholars (Myers,

2001). Especially in the North, many NGOs and scholars started to support the idea that children have rights to work (Burra, 2003).

Within this framework, children are considered not just passive recipients or victims of exploitation. They are the ones who know what needs to be done for them and are capable of having opinions (Miljeteig, 2001). Therefore, the advocates of this perspective believe that children should be listened to and their opinions should be taken into serious consideration in order to make effective social policies related to child labor. Without knowing children's views, their perceptions, and their real experiences, any policy interventions seem to become divorced from practical reality that children and their families face. Fyfe (2001) criticizes traditional perspectives, such as the abolitionist one, due to this exclusion of opinions of one of the most important stakeholders, children themselves, from designing policies. As a result, many child labor policies end up being insensitive universal approaches that have been created based on the global definition of childhood and their work (Kabeer, Nambissan, & Subrahmanian, 2003).

Within this perspective, work that damages children's well being and hinders individual and social development is considered child labor (Myers, 2001). This approach is the one in which locality is considered instead of globality. Local cultures, traditions, and practices play important roles to identify child labor. Those elements are respected and taken into consideration in this perspective while being ignored in other perspectives (Burra, 2003). Meanings and definitions of childhood, children, and child work are constructed with cultural, economic, and social influences. There is no uniformity in definitions or meanings across the communities, countries, and regions (Kabeer, Nambissan, & Subrahmanian, 2003). Childhood, children and child work mean different things in different places. As Woodhead (2001) describes, therefore, that children may be positively or negatively affected by their working

experience depending on how their work is perceived culturally, socially, and economically in their communities. In this perspective, thus, attention is paid not only to kinds of work but also to the values of work they are engaged in to analyze the appropriateness of the working experience of children. Children's economic participation is not the only child labor. Girls' housework, which tends to be missed as child labor/work, for example, can be child labor/work depending on the social, economic and cultural value on it.

The purpose of interventions within this framework is to guarantee children's rights, welfare, and healthy development tied with the CRC (Myers, 2001). The key creating social policies in this perspective is in the flexibility and adaptability of its application (Bissell, 2003). However, it seems unclear how to turn rights-language of this perspective and ideal flexibility and adaptability into practical actions and practical social policies. This could be the reason why this perspective remains marginalized and rarely considered as an effective strategic view in national policies and programs that guide child labor actions (Myers, 2001).

Moreover, as Lieten and White (2001) mention, children's participation in the decision-making process is still highly controversial. As Burra (2003) points out, children who raise their voices in public by attending international conferences, for example, are generally empowered and strongly influenced by the NGO's that work with them. NGO's, as mediators, can be manipulative. Those children's ideas mostly coincide with the NGO's advocacy. Those empowered children can be seen as mouthpieces of the NGOs. In addition, it is questionable how well children are aware of the implication of work upon their future regarding their health, economic opportunities and social mobilities consequent to their academic achievement and attainment and how well they can calculate and foresee the long-term consequences of whatever current decisions they make (Burra, 2003).

Lastly, like the social responsibility perspective, there seems too much emphasis on human rights arguments while paying little, if any, attention to social and economic environment around the children (Myers, 2001). Although this rights-based approach is a new wind that will certainly have its position in the child labor discussion, much deeper discourse seems necessary. With only rights-based discussion, without critical structural changes of society and social and economic systems, it is unlikely that great improvement in children's lives will occur.

2.2.2 Summary

As discussed, there is no general consensus of either the definition of 'child' and 'childhood' nor that of 'child labor' and 'child work' that can be accepted world-wide (Lieten, 2001; Myers, 2001; Siddiqi & Patrinos, 1995). The lack of common definitions and concepts of children, childhood, and child labor have led the current international debates on child labor to chaos, acrimony, and misunderstanding (Lieten & White, 2001). Rather, it can also be seen as an obstacle to global solidarity against child labor (Myers, 2001). However, all the perspectives and their advocates have contributed to improving children's lives in various different ways. None of the perspectives is better or worse than others. Depending on the situations and conditions, one perspective may be more suitable than others in order to combat issues related to child labor more effectively. Therefore, it is important to accept the idea that the nature of interventions will and should vary depending on the goals and targeted groups. It is also very important to understand the strength and weakness of each perspective in order to create multifaceted and multidimensional social policies. Although it is not easy, it may be more productive, more constructive, and more useful, as Myers (2001) suggests, to accept and even appreciate a diversity of the concepts and definitions of childhood, children, and child labor/work.

As discussed earlier, collaboration among agencies has become very active and energetic through transnational advocacy networks. It seems that transnational networking can play much more influential roles. Not only collaboration among advocates/agencies that share the same perceptions and values, but also collaboration among the advocates/agencies that have different views and perceptions seem to be important and necessary in order to understand the reality from various aspects and improve the current situation more effectively. This may also help different ideas and values mingle with each other and urge new social construction of 'childhoods' that have both local and global essences.

2.3 ANALYSIS OF POLICY IMPLICATIONS

As the world has become more aware and conscious of child labor during the last two decades, various kinds of interventions in order to combat child labor and to universalize compulsory basic education throughout the world have been implemented. Due to the nature of the issues of child labor, most interventions dealing with working children can be categorized either as economic or educational interventions. The purpose of economic/labor market interventions, such as minimum age legislation and product labeling, is to make it harder or disadvantageous for children to be employed or for employees to employ children. The purpose of educational interventions, such as compulsory education law and subsidization of schooling, is to keep children within school settings and to protect them from abusive employment as well as to educate and empower them for development of both themselves and the country.

K. Basu (1999) shows a different way of categorization of interventions. He divides these interventions into three categories according to the levels of intervention: intra-national,

supranational, and extra-national interventions. Intra-national policy interventions are those that are planned and implemented to control child labor within the national boundary. This includes laws and legislations of a country and various programs provided by many national and international NGO's that try to curb child labor and to provide educational opportunities to children. Supranational policy interventions are the efforts to try to reduce child labor by international organizations, such as ILO, UNICEF, UNESCO, and WTO, mainly by establishing various kinds of conventions, such as international labor standards and the Worst Form of Child Labor Conventions, and persuading national governments to ratify them. Extra-national interventions are those that are effective within one country, but may have a strong deterrent effect in less-developed countries. As shown in the following discussion, especially supranational and extra-national efforts tend to be counterproductive unless carefully planned and implemented.

This section investigates various policies and interventions dealing with child labor and education, in order to seek better ways to support and protect children and provide them with education. As there are no perspectives and arguments to analyze all situations and conditions perfectly, there are no interventions that fit all situations perfectly and can solve issues of child labor and universalize primary education. As Grootaert and Patrinos (1999) mention, there is no single or dominant way of reducing/eliminating child labor; moreover, certain interventions may potentially make working children and their families worse off. Therefore, it is important to explore each intervention and to study risks of each intervention. This may give us insightful understanding of the strengths and weakness of current national and international child labor policies in order to broaden future possibilities for better policy interventions.

2.3.1 Rights-based intervention: United Nations Convention on the Rights of the Child

Before discussing various individual child labor policy interventions, it is worthwhile to engage in the conversation about the United Nations Convention on the Rights of the Child (CRC). The CRC was established in 1989 after a decade of serious discussion among committed members from various fields, such as educators, policy-makers, economists, NGO advocates, etc. It has been ratified most widely among human rights conventions in history. This is the first international legal rights instrument and profound statement of the world's commitment to children that introduced child-centered and rights-based approach to the field of both child labor and education (Lieten & White, 2001; UNICEF, 1997).

Myers (no date) points out two major contributions of the CRC. First, the CRC has provided a common language in the field of child labor. Child labor has been discussed and problematized with numerous diverse definitions. The definitions of child labor / work and the types of exploitative work, for instance, were so diverse that there was no consensus on the definitions and meanings of childhood, child work, and children. Slowly but gradually, organizations, including the ILO and trade unions, and individual experts have adopted the definitions and categorizations that the CRC proposes. They have started to share common ideas and knowledge, which helps them work together collaboratively. Secondly, the CRC puts its emphasis on the best interests of the child. This was a totally new concept when it was expressed. Accordingly, many national and international NGO's have started to advocate this concept and tried to look for innovative ways of framing it into practical policies and programs.

While being the most important milestones of child rights approaches, it has received many critiques. At the conceptual level, first, the CRC is excessively the "North and West"-value oriented, which values a highly individualistic view of children and child development that

often conflicts with the majority of the world's culture which tends to regard children as an integral part of family and society as a whole (Myers, no date). Also, the 'ideal' childhood in the CRC is a global social construction of childhood, which may be distant from any existing definition of childhood as well as from reality. The ideal childhood described in the CRC may sound too idealistic and too unreachable. Second, while it can criticize countries that fail to meet with their obligations with the CRC and bring international shame on those countries, it cannot sanction those countries for violation nor force them to implement it properly (Birch, no date; Bissell, 2003). This is a common weak point of international conventions and declarations; they remain as pieces of paper with good will and intentions without being translated into effective practical instruments (Lieten & White, 2001). Third, the CRC is rarely matched with corresponding action in law, policy and practice at the national level and sometimes conflicts with the country's existing laws and policies (Myers, no date; UNICEF, 2001). Without any international legal punishment as stated above, governments tend to be unwilling to modify existing laws and policies. Lastly, the advocate of the CRC is very difficult to embody into practical actions by going beyond advocating children's rights. Although many NGO's and some international organizations energetically advocate child-centered ideas and the CRC, there are few practical actions as policies or programs that can facilitate this view at the national level. The concern is 'how' to transform it into concrete actions and 'how' to measure its effects.

This rights-based approach is still new with much ambiguity in terms of effectiveness in reality out of idealism. However, this approach has such a tremendous potential to cover the neglected field and children with interventions in the future.

2.3.2 Legislative interventions

Labor market interventions, such as minimum age law and anti-child labor law in order to combat/reduce child labor, are one of the most common and conventional ways. Various policies and programs have been implemented at the supranational, extra-national and intra-national levels. The strategy used mostly is to ban or at least to control child labor. As K. Basu and Van (1998) describe, when people become informed and aware of the issue of child labor, they tend to want to banish it and, thus, to ban it. There are many arguments over this type of interventions, both at the theoretical and practical levels.

At the theoretical level, K. Basu and Van (1998) conclude that banning child labor in very poor less-developed countries where both adults and children need to work due to low wages is not a desirable strategy since it can worsen the condition of the labor households, while a ban can be a beneficial policy in industrialized countries where only adult work with sufficient wages. Dessy and Pallage (2003) show that even a ban on the worst forms of child labor in poor countries can worsen the conditions unless appropriate mechanisms are designed to compensate the financial loss from withdrawing children from harmful labor. Their discussion questions the impact of the ILO Worst Forms of Child Labor Convention No. 182 (1999). On the other hand, Baland and Robinson (2000) find that banning child labor can be Pareto improving since endogenous change in wages (increase in adult wages) is most likely to occur induced by reduction in child labor by a ban.

At the practical level, reality seems much more complicated. Even interventions with good intentions tend to cause deteriorated effects on child laborers and their families by making them worse off. Some of those interventions may also take away educational opportunities from

children. In addition, legislative interventions can be used by protectionists in order to protect not children but their own economy (K. Basu, 1999).

The most powerful supranational effort is imposing international labor standards, a set of minimal rules and conditions for labor that all ratified countries are expected to accept and follow, mainly advocated by the World Trade Organization (WTO), the successor of the General Agreement on Tariffs and Trade (GATT). Trade sanctions are imposed on countries that cannot satisfy the minimum standards. The major criticism is that it seems to represent the protectionist point of view of child labor, although it claims to aim at helping poor less-developed countries and their populations by keeping their minimal living standards. (Anker, 2001; K. Basu & Tzannatos, 2003). Protecting workers in less-developed countries, including children who work in abusive and unacceptable conditions, seems rather its second goal. The real concern for the labor standards appears to stem from fears and insecurity among industrialized countries' workers and citizens that they will lose their jobs to workers in less-developed countries who are willing to work with much lower wages in much worse working conditions (Anker, 2001; Kabeer, Nambissan, & Subrahmanian, 2003). However, as Siddiqi and Patrinos (1995) discuss, there are increasing doubts on this assumption such that competition between developing and developed countries may not be the cause of unemployment in developed countries. In addition, K. Basu & Tzannatos (2003) explain that the amount of exports from developed countries to less-developed countries usually exceeds the amount of exports from less-developed countries to developed countries. They also note that the products manufactured using child labor in exploitative conditions are not those sectors in which serious competitions occur between industrialized and less-developed countries. Moreover, international labor standards and punitive sanctions may risk making existing problems worse without appropriate compensation.

It is unlikely to improve children's welfare or to increase children's school attendance (Buchmann, 2000; Cingo, Rosati, & Tzannatos, 2000). Due to these controversial opinions and concerns, the world is very concerned about its adoptability, which has led some industrialized countries to establish legislation or to take actions in their own countries to influence the elimination/reduction of child labor in less-developed countries (extra-national interventions) (K. Basu, 1999).

At the extra-national level, some industrialized countries have established legislations in order to control the involvement of child laborers in production in less-developed countries. One of the most well-known interventions of this type is the Hatkin's Bill (Child Labor Deterrence Act of 1997) implemented in the United States. It bans the import of those goods produced with child labor. Due to this bill and accompanied trade sanctions against countries employing child workers, about 50,000 to 200,000 under-age workers have lost their jobs, while about 10,000 children have been sent to schools especially set up for them (Fallon & Tzannatos, 1998). Many of those children who lost their jobs have no other choice than to move into the informal sector, which tends to be less safe and much more abusive and harmful, such as prostitution (Anker & Helina, 1996; Bissell, 2003). The question is, therefore, if this policy should be seen as effective or deteriorating. Is this effective because it gave educational opportunity to over 10,000 children or deteriorating because it worsened off 50,000 to 200,000 children and their families?

There also seem to be many problems with intra-national interventions. Although most countries in the world have national minimum working age laws and regulations for working conditions of young children and many countries have ratified the CRC and the ILO Convention on the Worst Forms of Child Labor, which implies that conventions are all in force in those ratified countries, enforcement in most less-developed countries tend to be so weak that child

employment is observed in various sectors. Moreover, these legislative interventions are often applied only to formal sectors, which leaves the informal sector out of government control where so many children find employment (Bellettini & Ceroni, 2004; Levinson, Anker, Ashraf, & Barge, 1996). Also, in many less-developed countries, the minimum working age is contradictorily set lower than the required age of compulsory education. This may pull children out of schools before completing and put them in full-time employment (Siddiqi & Patrinos, 1995). Under this circumstance, it seems very difficult to use laws and legislations as effective policy means of combating/reducing child labor at the country level unless national governments make great efforts to enforce them by mobilizing major stakeholders such as employers and communities.

2.3.3 Economic interventions

Most popular economic intervention aimed at reducing child labor seems to be a poverty reduction approach. Instead of trying to directly control child employment, this approach tries to ease the financial burden among the poor, which can reduce children's financial responsibility and commitment for their families and can provide them with time and money in order to attend schools. Jensen and Nielsen (1997) find support for the poverty hypothesis that lessening the family poverty increases children's school attendance and saves children from exploitative work.

At the micro level, direct cash grants to poor families are one intervention that has been implemented by NGO's and international organizations. Providing cash to families leaves them with choices of allocating the grants based on their decisions. However, there is also a great doubt that families often do not use the money given to them in the intended manner (Anker & Melkas, 1996). Also, long-term sustainability is questionable. Considering sustainability and

affordability, providing cost-effective income-generating activities to families and communities, such as support for micro-enterprises, credit schemes, and employment training, may be more feasible and practical to help families and communities improve their economic situation and make child labor less attractive, although there is no guaranteed improvement from a children's welfare and rights point of view (Anker & Melkas, 1996). The extension of old-age security also seems one of the important factors to decrease the incidence of child labor and increase school attendance, while land redistribution seems to increase the incidence of child labor (Cingo, Rosati, & Tzannatos, 2000).

At the macro level, on the other hand, national economic growth seems to eventually reduce child labor in the long run, while it may temporarily increase child labor with skewed development strategies in the short run (Burra, 2003; Cingo, Rosati, & Tzannatos, 2000). Improving labor market conditions of employment in addition to improving school quality is also important, since one of the major reasons of children not attending school is that children and their parents see no meaning of attending schools due to the mismatch between educational outcomes and labor opportunities (Anker, 2001; Buchmann, 2000).

2.3.4 Social intervention

The most popular social intervention, especially among activists in industrialized nations, is product labeling, which is pasting labels on products advocating messages. This may seem very effective to control child labor in a participatory and democratic way because consumers in industrialized countries have a choice either to choose or not to choose the products. Although it gives consumers a feeling that they are contributing to combating child labor and helping children in poor countries, product labeling does not seem to be a right way of fighting against

child labor. Similar effects and impacts to those of the legislative interventions can be expected. As Hilowits (1997) and K. Basu & Tzannatos (2003) describe, although it may reduce the number of children employed in a particular production targeted by those activists, first, it can only attack child labor in such a few targeted export product operations, and second, those children who have lost their jobs in targeted production can easily move to different jobs, some of which are much more harmful and exploitative. Other social interventions, such as boycotting and company coding products, tend to end up with the same outcomes.

Eliminating child labor from certain industries by using labor market/legislative interventions and social interventions without providing alternative harmless income options and appropriate educational opportunities can be easily counterproductive; they seem to result in severely hurting those working children and their families and worsening their living conditions instead of helping them. Good intentions have to come along with good strategies in order to combat child labor effectively with the least deteriorated impacts.

2.3.5 Educational interventions

Psacharopoulos (1994) argues that people with more education tend to have higher income and that economic returns to primary education have the highest profitability of investment with diminishing rate of returns by the level of schooling. Without having at least a basic primary education, it is less likely for individual humans and families to get out of the poverty trap and for nations to expect stable, sustainable social and economic development. It is very interesting that while education can be a powerful tool to eliminate/reduce child labor, the low quality of education in many less-developed countries often discourages attendance and encourages children to work instead of attending school.

As Siddiqi and Patrinos (1996) express, schooling represents one of the most important means of drawing children out from the labor market, protecting them from abusive and exploitative employment, and providing them with opportunities to understand their roles in society as responsible, productive adults. It also gives children greater future possibilities of employment opportunities. Schooling is important not only to individuals but also to the nation. The more educated people there are, the more human capital is accumulated and the better future economic growth can be expected, which will eventually contribute to combating/reducing child labor in the future. Although keeping children within school during the school hours does not guarantee that they are free from child labor, it certainly reduces the possibility to be involved in exploitative, exhausting work. Therefore, educational policy interventions can be effectively used to combat/reduce child labor.

Although there is a supranational effort to combat child labor, such as the Education for All (EFA) launched in 1990, its goals seem to remain more or less conceptual because there is no practical penalty for failing to achieve their goals. The international society could pressure countries that fail to keep up with their goals, but the society cannot take a practical punitive action. The actions to achieve the EFA are left in individual countries' hands. There also seem to be no extra-national interventions focusing only on educational achievement in other countries. This may be because lower or higher educational attainment of one country does not directly economically or politically affect other countries. Therefore, most educational interventions are intra-national interventions within boundaries. However, this does not mean international agencies are not contributors. Rather, many international organizations, such as UNICEF, ILO, World Bank, regional international agencies, and NGO's have contributed to implementing local programs and projects in individual countries. In fact, intra-national

interventions seem to be the best interventions among three levels of interventions, as Fyfe (2001) describes the importance of the local process of educational interventions. He claims that the key to success in linking child labor elimination with reforms in basic education provision is in the local level of action because involving children and their parents and studying their life style within their societies facilitate a much more sensitive and more suitable approach to the issue. In order to make his claims work out, it is essential to consider children and their parents as important stakeholders and actively involve them so that they will know and act on the purposes and expected outcomes of the reforms.

2.3.5.1 Compulsory education law

Like banning child labor in order to banish it, enforcement of compulsory education is the simplest and easiest way of keeping children within schools. Weiner (1991) describes that compulsory education is an effective policy instrument by which the state can remove children from the labor market. However, this approach seems unfeasible to implement, for a number of reasons, and in fact it has not been successful at all in many less-developed countries as a preventive policy instrument of child labor. First, as discussed earlier, the minimum working age is lower than the required age for completion of compulsory education in many poor less-developed countries (Anker, 2001; Siddiqi & Patrinos, 1995). For example, in Chad, the duration of compulsory education is nine years from the age of six, while children whose ages are between 12 and 14 are allowed to work in some non-hazardous situation. This implies that children can work legally without completing compulsory education. Many children from very poor families are induced to gain employment easily. Second, enforcement is usually very weak in many countries (Fallon & Tzannatos, 1998). While many national governments in many countries have been willing to allocate a large amount of money to higher education, which

seemingly contributes more to national economic growth, they have tended to be reluctant to put more efforts on further enforcing compulsory education. Third, with strong enforcement, it may endanger the welfare of children and their families who rely heavily on children's financial contributions and run risks of overloading children who work in non-school hours by damaging their physical health, while reducing child labor (Cingo, Rosati, & Tzannatos, 2000; Fallon & Tzannatos, 1998).

Therefore, simple enforcement of compulsory education seems not to be effective, yet rather harmful. This has led some NGO and activist communities to regard compulsory education as traditional out-dated approach in order to effectively protect children which has divorced from practical realities faced by poor families (Fyfe, 2001). In order to make formal basic education an effective way of protecting children from abusive exploitation of work, various policy interventions have been created and implemented mainly by national governments with a great contribution from various international UN agencies and some NGO's that advocate effectiveness of formal schooling.

2.3.5.2 Interventions for reducing school related costs

For poor families not only direct costs of schooling, such as tuition fees, PTA fees, and expenses for school supplies including uniforms and stationary, but also indirect costs (opportunity costs) of schooling that are a loss of children's forgoing income are a tremendous burden. Currently, there are many interventions that help poor families by lessening the financial burden of sending their children to school. Four major programs are discussed below.

First, many countries offer tuition remission programs. Many countries provide tuition-waiver programs such as scholarship to the students from poor families. The advantage of this type of program is that it cannot be transferred to benefit other family members, for example,

from a daughter to a son, which would happen especially in a traditional household where educating sons are generally valued much more highly than educating daughters. Also, it cannot be sold to utilize the money obtained for other purposes instead of being used for children's education, which sometimes happens with other types of supports like in-kind payments (Anker & Melkas, 1996). However, one major problem of this free tuition program is that it does not compensate the involved families for forgoing opportunity costs of lost income from children's work (Anker & Melkas, 1996). This intervention may be effective in cases where the reason for children not attending school is only because the school fee is so high that families cannot afford to send their children to school although they are eager and willing to do so. When families need financial contributions from children critically, a tuition waiver seems less of an encouragement to send children to school.

Second, targeted enrollment subsidy program is also a common strategy. Subsidy can take two forms: one with in-kind payment and the other with direct cash payment. Anker & Melkas (1996) points to two of the most significant disadvantages of payment in-kind transfer: First, as described, families, especially those who do not value schooling or education in general, may sell the items they have received in order to obtain cash they can use freely. Second, those materials provided may be easily transferred among children. In many countries in general, sons tend to take advantage of daughters under this program. Direct cash transfer as compensation for forgoing children's income seems ineffective as well, although it is much more appealing to parents. Parents, especially those who do not value children's education, may use the money for other purposes without sending children to school since families can be financially better off by obtaining money from both a cash transfer program and children's work.

Fourth, considering those disadvantages, conditional cash or in-kind transfers targeted at poor families have started to be implemented. This is one of the most popular interventions recently implemented. Cash or in-kind payments, especially foods such as rice or cooking oil, are provided on the condition that children stay in school more than a certain number of days per month. While parents are more motivated to send their children to school during the school hours, this type of program still has a deficit. Ravallion and Wondon (2000) investigates whether child labor displaces schooling in Bangladesh by studying the Food For Education program, in which families can get a certain amount of rice by sending children to school. The result shows that the value of the stipend, only 13 % of the average monthly earnings of boys and 20 % of girls, was enough to keep children in school, while the ratio of decrease in the incidence of child labor was much less significant than that of the increase in school attendance. This finding questions a common view that child labor is a major factor perpetuating poverty by keeping children out of school. Also, this implies that children's welfare may become worse since they have an additional task of going to school without reducing their contribution as laborers. Moreover, their findings questions families' views of schooling and children's time allocation.

Lastly, school lunch program is used to attract poor families and children. Although school lunch programs do not usually reduce direct or indirect schooling expense, they give children one nutritious meal a day, which takes away at least a small portion of families' financial burden. Thus, a school lunch/free nutrition program is tremendously valuable and attractive for children to come to school and to increase children's capacity to concentrate during class, although it does not make children to stay in school (Anker & Melkas, 1996). There is a great possibility for children to leave schools after lunch. Also, compared with tuition remission

or payment in-kind programs, it seems less attractive to parents since the program does not cover any direct schooling costs. This program would better fit and attract parents where financial situations are above critical and the focus on an educational policy moves from students' educational attainment to their educational achievement because nutritious meals help children concentrate more in class.

Those interventions, based on the idea of 'buying' children's time, have an immediate effect, and are considered highly appropriate in a crisis situation where children may otherwise end up engaging in the worst forms of child labor as child soldiers or prostitutes (Cingo, Rosati, & Tzannatos, 2000). However, there seem to be some serious concerns. One of the major concerns of these interventions is long-term sustainability of such programs (Burra, 2003; Myers; UNICEF, 1997), especially when those top-down interventions without considering local reality or mobilizing community support are unlikely to last (UNICEF, 1997). Also, due to the necessity of a large amount of money to implement these types of interventions, even in a limited area, it can only cover very few children (Burra, 2003). Lastly, findings of Busby & Busby (1996) make an insightful comment about subsidy programs. First, criterion for the people selected for subsidy programs are not clear in many cases, implying that some of the targeted students may be from families for which supports are not critical. Second, subsidy programs may also discourage people from working in order to get out of the program. Third, subsidy programs may decrease the recipients' sense of control over their own lives and make them dependent on others or institutional supports.

2.3.5.3 School quality

Financial support is not the only way to keep children in school and out of hazardous work. Another intervention is making school attractive, by improving education quality, and more

accessible by improving school curriculum and facilities so that children and parents can find reasonable meanings of receiving formal education to combat/reduce child labor (Fallon & Tzannatos, 1998; Jensen & Nielsen, 1997). Frequently criticized, many schools in less-developed countries provide a formal education that does not satisfy students and their families in many ways (Cartwright, 1999; Siddiqi & Patrinos, 1995). Many schools do not function as safe and meaningful places for children; for example, many schools, especially in remote areas, are not well equipped, many teachers are of poor quality, learning contents are irrelevant from students' real life especially in countryside, school calendars are too inflexible for students to combine school and work during the agricultural peak season, and sometimes no school exists within an accessible distance.

The definition and provision of quality education could be fairly different between urban and rural areas and among people from different socioeconomic backgrounds. Current formal education provided in many countries is usually set and prepared mostly for students who stay in a competitive academic cycle up to the higher education level. Therefore, for those who are socially-disadvantaged, especially those who live in rural areas in less-developed countries, formal education tends to be irrelevant to their life style, implying that obtaining formal education does little to improve their lives. This is a very controversial issue when the relationship of child labor/child work and education is discussed: going through formal education does not really improve those people's lives, although formal-education advocates claim the effectiveness of formal education to improve people's lives. It is, thus, important that education meet students' and their families' needs so that they could see the meaning of obtaining formal education, even sacrificing the forgoing incomes from children.

Although accessible education with good quality surely has potential to combat/child labor, there are several concerns for certain interventions. As Fallon and Tzannatos (1998) expresses, although a flexible school calendar that would not conflict with the peak agricultural season seems effective, it can make the school year too short in rural areas. Also, making the subject curriculum relevant to students' lives might lower curriculum standards in rural areas. These questionable reforms, therefore, may widen the achievement gap between students in urban and rural areas. Another concern is that improving school facilities and constructing a new school building are very expensive projects, especially for governments in less-developed countries, without mobilizing local resources.

Providing quality education is a fairly new strategy used in the discussion of child labor. Little research has been done yet to investigate advantages and disadvantages in this field. Interventions in this area need much more attention, efforts, and studies before being effectively implemented as a strategy to combat/reduce child labor.

Lastly in this section, it may be worthwhile to mention one inventive program that is currently implemented in a few countries. Students can make earnings and learn income-generating skills in the class or in the school. In Indonesia, some schools offer classes in which students can learn income-generating skills such as cooking. Students can sell what they make in the class. In Thailand, welfare schools support students' after-school activities to generate incomes for themselves and their families. Although this is currently not a major intervention to combat/reduce child labor, this has a great potential to be a major intervention.

2.3.5.4 Non-formal education

One of the major educational supports of child laborers and street children is in the form of non-formal education. A flexible schedule and curriculum meet the needs of those children. While

NGO's were the pioneering agencies, non-formal education is recently gaining increased legitimacy with governments and international agencies concerning children and child labor, such as ILO, UNICEF and World Bank. Non-formal education is very important for working children and street children who have never attended schools or who dropped out long ago, since it is extremely difficult for them to adjust their habits and life styles in order to fit into school life without a period of rehabilitation (Anker & Melkas, 1996). Non-formal education can play a role as a bridge between the workplace and regular formal schools. It is also important for those who are overage children but have not obtained any formal education. Those children may acquire vocational skills and common knowledge through non-formal education. Non-formal education surely has its position to help those abused or disadvantaged children.

However, too much dependence on and trust in non-formal education alone to educate child laborers could be disruptive in a society. Burra (2003) comments clearly about this point:

> "How much education the child will get after a whole day at work would be a matter of concern. To my mind, support of such a nature only perpetuates inequality in society, for while some children get a regular serving of education, working children get only the scraps… The perpetuation of a dual system of education will only help to reinforce the divisions within the existing social order" (p.83-84).

While admitting the important role of non-formal education for abused and exploited children, efforts should be made to send them eventually to formal schools in order to let them stand in the same field with other children.

2.3.6 Other interventions

In this section, I describe several existing interventions that have possibility to effectively reduce child labor and increase school enrollments.

2.3.6.1 Parents' education

Educating parents, especially mothers, seems to have many side effects in addition to empowering themselves; among them are positive effects on the issues of child labor. Much research finds that parental education is a strong predictor of children's school enrollment in the way that educated parents are more likely to send their children to school instead of to work, since they know the importance of education (Buchmann, 2000; Grootaert, 1999; Ravallion & Wondon, 2000). More specifically, it is widely believed that educating women and mothers have positive effects on children's schooling (Cingo, Rosati, & Tzannatos, 2000; LeVine, 1987).

Although it is difficult to improve parents' formal education attainment, these findings suggest many useful policy implications. First of all, educating parents/adults, even through non-formal or informal education, can improve their roles as parents, leading them to be more protective towards and responsible for their children. Second, children whose parents have less education should be the priority to be taken care of rather than children with educated parents since the former have greater risks to drop out of school.

A. Basu (1993) finds an insightful and non-negligible finding about mother's education. Although most of the research on effects of women's education on child labor suggests the positive influence of it, he finds that educating mothers may be counter-productive to children's schooling since they can find employment outside more easily than uneducated mothers and their children may have to substitute for mothers in the home. It seems important for policy-makers to pay attention to this possible counter-product of women's education, as opposed to blindly supporting parental education, in order to create an effective strategy to decrease the possibility of these negative impacts.

2.3.6.2 Community mobilization/awareness-raising

Anker and Melkas (1996) and many others (Fallon & Tzannatos, 1998; Myers, no date) claim that community involvement through awareness-raising is essential in efforts to combat/reduce child labor. This intervention has been recently drawing more and more attention as an effective intervention to combat/reduce child labor. A main strategy is providing information and education to parents, employers, community leaders and members, and children in order to make them aware of risks of child employment and importance of education for social and economic mobilization. It helps children who are currently engaged in hazardous work recognize their rights and withdraw themselves from their work. In addition, it can be a preventive intervention for those who may be otherwise participating in a hazardous labor force in the future. Public awareness raising also puts pressure on employees who are unwilling to give up on child labor to avoid hiring children (Fallon & Tzannatos, 1998). Mobilizing a whole community is critical. Although, as Myers (Myers, no date) mentions, success is not guaranteed, mobilizing the community to work together towards one goal seems not only to have great positive impacts on child labor elimination but also to have a lot of positive externalities and spin-off. This type of intervention can empower and re-energize a community to stand up for themselves, and even bring a community back to life.

School can also play an important role in awareness-raising intervention by providing children with information about their rights and the risks and hazardousness of various work (Anker, 2000). In Thailand in 1993-1994, teachers in 22 schools from the country's poorest regions ran a campaign to raise awareness about child's work and to prevent underage children from entering the work force. They sensitized the whole community to the harmful impacts of child labor by teaching children in the class, using media such as newspaper, magazines, videos

and cartoons, and holding a meeting for parents and community members. Amazingly, most of the children involved in this project continued their education and completed lower secondary schools, and in many cases, parents changed their attitude towards children's education (UNICEF, 1997). This example questions the traditional interventions that provide some kind of financial support to the poor, since the Thailand project did not provide any financial assistance to the targeted group. This also questions the family educational decision-making process, which many economists assume will make the best use of the family's resources. Moreover, this example shows the importance of collaboration among stakeholders and contributing agencies. Empowering people by mobilizing the community is NGO's specialty since they have great networks and enough local information. The problem is that NGO's tend to mistrust governments and formal schooling. As the Thailand example shows, involving schools and government agencies can achieve the goal much more efficiently and effectively since schools and teachers can be leading agencies and because they exist throughout the country.

Lastly, providing certain financial support in the form of a subsidy or stipend in part of the project may be of great help to the families involved. Affected children and families may become worse off by sending children to school instead of the workplace, unless alternative income options are created. Subsidization under this circumstance seems much more effective and useful to help families with short-term loss of income.

2.3.7 Summary

Various policies and programs are investigated. There is no one perfect policy or program that solves the issue of child labor completely by itself (Grootaert & Patrinos, 1999). However, it is

useful to reflect on the pros and cons of various approaches to eliminate child labor and to protect children.

It seems any zero-tolerance approach is counter-productive since such policies fail to address the root of causes of child labor from various dimensions (Grootaert & Patrinos, 1999). Poverty itself is not the only problem; neither is poor education quality. Legislative bans, international boycotts of products, enforcement of compulsory education, etc. can harm working children and their families. The problem is that all those partially effective policy interventions have been implemented in isolation from each other (Anker, 2001). It is not until recently that even reforming basic education started to take some position as an effective strategy to eliminate/reduce child labor (Lieten & White, 2001).

Child labor is not a sectoral problem. It cuts across the policy boundaries. (Cingo, Rosati, & Tzannatos, 2000). What is important, and what has been learned from experience in order to combat child labor, is to fight against the problem with a multifaceted and multidimentional policy approach that balances economic, legislative, educational and social interventions (Grootaert & Patrinos, 1999; UNICEF, 1997).

In addition, involving all the stakeholders, such as teachers, parents, children and employers in the discussion of child labor is also important. There are multiple reasons to eliminate child labor and multiple reasons to justify existing child labor among various stakeholders, which implies that positive effects for one group may be negative effects for another. In order to create less conflicting approaches, joint analysis among all the stakeholders and contributing agencies is critical (Anker, 2001).

Lastly, the role of the state should be mentioned. National governments in most countries in the world have not been enthusiastically involved in the issue of child labor and have failed to

be a leading agency to combat child labor (Fyfe, 2001). Many interventions to combat/reduce child labor have been implemented by international organizations and domestic and international NGO's. Although the CRC has been ratified nearly universally; for example, this impressive world-wide human rights movement does not correspond to actions in law, policy, and practices in most nations (UNICEF, 2001). Weiner (Weiner, 1991) clearly claims that it is political will, not poverty that constraints universalization of compulsory education and elimination of child labor. Evidence from Kerala and Himachal Pradesh, two of the Indian states that achieved almost universal compulsory education, shows what governments can do and how powerful they can be with strong political will and commitment. Without governments' serious commitment and involvement, it may be difficult to achieve universal compulsory education and to combat the root of child labor.

2.4 RATIONALES AND FACTORS OF PREVALENCE OF CHILD LABOR AND LOW SCHOOL ENROLLMENT

Although economic factors are often seen as critical factors that control the rates of child labor and school enrollment, and it is almost impossible to isolate economic factors from the discussion of child labor, much research has discovered several other important factors besides economic ones that have been largely ignored until recently but may influence both rates. In this section, existing rationale and factors including the prevalence of child labor and low school enrollment rate will be discussed from various points of view.

2.4.1 Micro economic analysis of child labor and low school enrollments

Most of the research to determine the factors related to the incident of child labor and primary school enrollment rates have been conducted using the national household surveys at the micro economic level in various countries. Therefore, before discussing the issue of child labor and the low school enrollment rates in less-developed countries at the macro level, existing theories of household decision making of children's time and labor at the micro level and micro level factor analysis are summarized.

At the micro level, family poverty is seen as the main or sometimes even only cause of the prevalence of child labor and low school enrollment rate. Although family poverty is seen as a major cause of the prevalence of child labor, there are several different perspectives analyzing the way poverty affects the decision-making process, even among those who support poverty arguments. Buchmann (2000) divides the mechanism of family decision-making into two theoretical perspectives from the economic point of view: "(1) economic arguments that stress families' considerations of future returns of schooling, (2) resource-constraint arguments embodied by the family economy and resource-dilution perspectives" (p.3).

Economic arguments stress families' consideration of long-term returns of schooling. Becker (1979) develops a model in which long-term family welfare is central to educational decision-making. Like many other economists such as K. Basu and Van (1998), Becker assume that parents are altruistic and care about their children's welfare as well as their own welfare. Therefore, parents rationally calculate to maximize the resources of the entire family in the long run and redistribute them among family members according to their preference and their perception of economic returns to education within their budget constraints (Becker, 1979; Buchmann, 2000; Cingo, Rosati, & Tzannatos, 2000; Jafarey & Lahiri, no date; Jensen &

Nielsen, 1997). Based on this assumption, decisions for educational investments (human capital) and/or for those in physical capital (child labor/work) are made for children. Buchmann (2000) finds that the fact that girls' education generates lower economic returns, due to the discrimination against women and girls in the labor market, may explain limited educational opportunities for girls.

Jensen and Nielsen (1997) extend the Becker's theory considering two assumptions that influence parents' decision-making: perfect/imperfect market for physical capital due to credit constraints; and parents' full/partial control over future economic returns to education of their children. They investigate four combinations of those two assumptions and find support for the economic theory with imperfect capital market and full control over the income of their children, which is fairly common in many backward societies. Their research indicates that parents' educational decision-making is greatly influenced by credit constraints and that education is perceived very expensive due to the credit constraints. In this situation, even rational and altruistic parents tend to withdraw their children from school and send them to work.

Although these discussions seem very reasonable, one controversial issue that is often pointed out is the primary assumption of parental altruism. Few economists doubt this assumption. However, Anker and Melkas (Anker, 2001; Anker & Melkas, 1996) argue that parental altruism can be limited because parents, in developing societies generally, prefer having several constant income sources and that some parents are simply not altruistic toward their children irrespective of income levels. However, of course, it is obvious that child labor is not in the best interests in family and in society as a whole in the long run (Anker & Melkas, 1996). Also, rationality of parents' decision-making of their children's time allocation could be very different between parents who have not gained educational opportunities through formal

schooling and who have never had an opportunity to appreciate the outcomes of formal schooling versus parents who have obtained educational diplomas and degrees and who have appreciated their educational attainments. Another underlying problematic assumption is, as Parsons and Goldin (1989) claims: educating children is a pure investment for families with the expectation of future returns, which implies that education is certainly considered good and valuable. Therefore, these economic arguments that stress families' considerations of future returns of schooling often cannot be applied to many less-developed countries where the quality of education is highly suspect and economic returns to education are uncertain (Fapohunda et al. 1988[9], cited in Buchmann, 2000).

The other argument, on the other hand, focuses on families' resource constraint to send their children to school. There are two different models are discussed under this argument, which are the family economy model and the resource dilution model.

The family economy model, in contrast to the arguments based on the human capital theory above, can be discussed independently from parents' altruism. As Buchmann (2000) explains, the model emphasizes that a poor family could not afford to act on rational calculations of future returns to educating children because doing so puts themselves in danger of worsening their current household welfare. The immediate need for children's income/help to support families' survival due to their substantially low and very high direct and indirect costs of schooling are the main factors that prevent parents from having long-term perspectives of families' welfare (Jensen & Nielsen, 1997). Bhalotra (2003) concludes that boys are compelled to work due to poverty in Pakistan; the poorer the family is and/or the lower the wage is, the longer boys work, which eventually force them out of school. However, by Fuller et al. (1995),

[9] Fapohunda, Eleanor, and Michael P. Todaro. (1988). Family Structure, Implicit Contracts, and the Demand for Children in Southern Nigeria. *Population and Development Review,* 14:571-94.

it is found that the probability of girls dropping out of school cannot be explained either by household labor tasks nor wage labor options since there are few options for girls in Southern Africa. Ray (1999) finds, somewhat contrary to Bhalatra's research, that the poverty explanation that poor parents send their children to work is rejected by data from a study in Pakistan, while it is supported, though weakly, by data from a study in Peru. Also, Ravallion and Wondon (2000) find that the Food-For-Education program in Bangladesh helps increase school attendance substantially, while its effect on reducing child labor is remarkably weak. These results make it unclear whether there is actually a tradeoff between schooling and work (Buchmann, 2000). Moreover, it is very difficult to separate truly needy parents from parents who falsely believe they need their children's help.

On the other hand, the resource dilution model, similar to the family economy model, stresses resource constraint due to poverty. It argues that limited family resources have to be thinly spread among all children (Buchmann, 2000; Patrinos & Psacharopulos, 1997). This theory can be applicable more or less to most of the families both in developing and developed countries (Buchmann, 2000), unless a family is so wealthy that parents need not consider their resource allocation for their children's educational activities. Parents who want to invest heavily in each child tend to have fewer children, which implies a tradeoff between having many children with less education and having fewer children with better education (Patrinos & Psacharopulos, 1997). Knodel and Wongsith (1991) find that larger family size shows negative influence on the probability of children attending secondary school in Thailand. With this model, younger siblings are more likely to attend school since older siblings have already completed their education or dropped out earlier (Powell & Steelman, 1990).

Patrinos and Psacharopoulos (1995), using the seemingly contradictory research evidence in which they discovered that number of siblings has little effect on school enrollment but has a significant effect on child labor in Paraguay, explain that "these findings may be evidence of 'specialization in the household" (p.389), whereby some children work, while others attend school. However, this 'specialization' seems to fit more accurately with the human capital theory, where parents calculate in whom they should invest as human capital and in whom they should invest as physical capital.

There are two major weak points of these economic theories. First, as Fuller et al. (1995) point out, they completely leave out cultural and social influences from the discussion, both of which obviously have great impacts on parents' decision-making. Second, as stated earlier, they also ignore quality of education (schooling). They take it for granted that education is good and beneficial, while quality of education provided in schools in many less-developed countries is highly suspicious. Therefore, there are still many left-out notions in the economic discussion of the mechanism of parents' educational decision-making process, which leaves space for other perspectives.

2.4.2 Macro economic analysis of child labor and low school enrollments

In this section, I describe the relationship among the incidence of child labor, school enrollments, and the macro economic phenomena.

2.4.2.1 Children and national economic development

As Chaudhuri and Gupta (2004) state, "today, child labo[u]r is pervasive mostly in the transitional societies of the developing economies, where multi-class social structure exist and a

complex of traditional capitalist production relations are operative in an articulated capitalist mode of production and exploitation" (p.201). During the last couple of decades, the world economic/political system has become so much more complicated than before due to technological advancement and globalization. As explained above, household poverty causes the problems of the incidence of child labor and low school enrollment rates from the economic point of view. Prevalence of household poverty is strongly related to nations' poverty. Although there is scarce literature available in determinant analysis of child labor using national level of surveys at the macro level, there are economic literature and research studying the relationship among national economic phenomena and incident of child labor and school enrollment. In this section, therefore, major macroeconomic discussions related to child labor and school enrollment are summarized.

2.4.2.2 Economic growth with equity in income distribution

It is generally assumed that country-level economic development, implying increases in per capita income, leads to decrease in the level of child labor and increase in the school enrollment rate. Fallon and Tzannatos (1998) indicate that as GNP per capita rises, the level of child labor lowers. K. Basu and Tzannatos (2003) show a strong connection between national economic growth and a decrease in child labor in China, Thailand, and India. In addition, Edmonds (2003), using panel regression analysis, found that improvement in GDP per capita could explain about 80 percent of the decline in child labor in Vietnam.

According to Levy (1971), however, GDP per capita could have either positive or negative influence on both rates. Higher GDP could facilitate school enrollments since more parents may be able to afford to withdraw their children from work and send them to school, while it could lead higher rates of child labor and lower school enrollment rate when child wages

increase, which makes opportunity cost of schooling higher. Also, radical economic development of a country with skewed development strategies, which tend to increase in nation's GDP per capita, may push children to work more and may increase in the level of child labor as a result (Burra, 2003; Swaminathan, 1998).

In addition, GDP growth rate is as important as GDP per capita. Not only the actual amount of increased income but also the rate of the increase influence people's future prospective. Continuous rapid growth rate gives the country and the population an optimistic view of their future economic situation at both individual and national levels. It may accelerate to decrease child labor and increase enrollment because more families become wealthier with an optimistic view of expecting an increase in income without children's work. Or, it may accelerate to increase child labor and decrease enrollment because of an urgent feeling of "earn as much as possible when possible," which makes opportunity costs of schooling much higher.

GDP per capita alone can be also misleading. It does not represent the economic equality among the population of a country. In many less-developed countries, only a small percentage of the population holds most of the nation's wealth, while most of the population stays poor. GDP per capita alone does not accurately describe this situation. In the model of Swinnerton and Rogers (1999), income inequality is found to be closely related to the rate of child labor in addition to national economic growth. Chenery et al. (1974) argues that economic development has to come along with equity in income distribution in order for the poor to strengthen their ability to purchase and produce. Tanaka (2003) also states that under more equal income distribution with the same income per capita, a high quality of public education is largely supported with a smaller amount of child labor. Income distribution, therefore, seems one of the crucial determinants of the amount of child labor. In addition, as Cingo et al. (no data) argue that

income gaps tend to be widened among the educated, literate, and illiterate due to the globalization, it seems that income redistribution has become more and more important.

2.4.2.3 Inflation

Inflation is also an important factor in the discussion of economic development and child labor. High-level inflation rates (especially acute and hyper inflations) distort the national economy. Inflation can be caused by many different reasons, such as large budget deficits that were financed by borrowing from the central bank, massive expansion of credit to the private sector, and political strife or civil war which exacerbated the fiscal and monetary causes of inflation (Gillis, Perkins, Roemer, & Snodgrass, 1996). Many less-developed countries accept high levels of inflation as an inevitable and sometimes necessary path to economic growth (Todaro, 1989). Although many economists once believed that moderate inflation stimulated the national economy because it was thought to force mobilization of savings at the national level and reallocate both human and physical capitals into modern sectors, the current major view is that inflation is a result of policy miscalculation or economic dislocation (Gillis, Perkins, Roemer, & Snodgrass, 1996).

Even if the GDP growth rate increases steadily, people's spending power rapidly decreases when a nation faces acute or hyper-inflation. Although inflation affects everyone in the country at an individual level, it seems that inflation affects the poor much more severely than the wealthier population. Souza (2001) finds non-expected inflation is strongly associated with inequality in Brazil. An especially high level inflation rate damages poor people's lives who have already had minimum or under-minimum incomes (Lee, no data). As a result, children need to work to support their families' survival. In addition, children tend to be withdrawn from schools because direct costs of schooling become very high during the inflation period. In

addition, inflation can also increase adult unemployment, which may force children to work to support their families and may push children out of schools due to the impossible payment of school fees.

2.4.2.4 Economic globalization /international trade

Economically speaking, globalization increases the percentage of world production that is traded internationally and interdependency increases among both developed and less-developed nations (Cingo, Rosati, & Guarcello, no date). Hardly any developed or less-developed countries in the world today can survive without international trade (imports and exports) with other countries.

Globalization is clearly related to the issue of child labor. There are two contradictory debates over the relationship between child labor and globalization. On the one hand, globalization/trade liberalization is optimistically considered to decrease child labor. It is believed to motivate national governments to invest in education (human capital) for the sake of economic growth, which eventually lead to a decrease in child labor (Becker, 1997). Some also argue that economic growth facilitated by trade liberalization eradicates child labor by raising the living standard and household income in less-developed countries (K. Basu, 1999; Dixit, 2000). Edmonds and Pavcnik (2002) find that increased rice price by trade liberalization in Vietnam considerably decreased overall child labor during the 1990's. Cingo et al. (no date) support this idea by using worldwide panel analysis. However, in today's world where developed nations export mostly capital-intensive products and less-developed countries, on the other hand, export mostly labor-intensive products, it may be too optimistic and too simple to assume less-developed countries will create both job opportunities that require skills and education and a workforce that is educated and skilled.

Globalization is also discussed as a factor that increases child labor. Globalization, in other words, trade liberalization in less-developed countries, is considered to promote a higher level of child labor because it tends to require cheap unskilled labor and, thus, reduces the incentives to human capital investment (Neumayer & de Soysa, 2004). In addition, the anti-market-integration argues that globalization may increase in child wage and/or provide children with earning opportunities, which ends up with increases in child labor (Edmonds & Pavcnik, 2002). International demands for labor-intensive goods seem to pull children out of school settings and push them into work places. For example, Hitchcock (2002) states that globalization in agricultural product has led to a high increase in child labor in the United States. Cingo (2003) extends the discussion of globalization and child labor by considering the cumulative human capital of a country. According to his analysis, lowering trade barriers raises the incentives to human capital investment, which increases the school enrollment rate and reduces child labor in countries whose workforce is reasonably well-educated; by contrast, lowering the trade barrier in countries with a reasonably uneducated workforce reduces the incentive to human capital investment, which decreases the school enrollment rate and increases child labor.

It has been only a while since the relationship among economic globalization, incidence of child labor, and school enrollment rates began to be discussed because globalization is a fairly recent phenomenon compared to the long history of child labor. It has rapidly sped up during last couple of decades. Therefore, the impacts of globalization/trade liberalization on the incidence of child labor and school enrollment rates are highly ambiguous and are under debate as discussed above. Much further research and investigation are required.

2.4.2.5 Foreign direct investment

Internationalization of production, in other words, foreign direct investment (FDI) has been growing much faster than international trade during the last two decades (McClintock, 1999; Gaston & Nelson, 2002). The great flow of FDI provided by multinational corporations has spurred economic growth of many less-developed countries. International production has made both developed and less-developed countries economically interdependent. Just like globalization, FDI is also a controversial issue and, thus, the impact of FDI on the incident of child labor is far from negligible. Both arguments of positive and negative impacts of FDI on child labor seem reasonable.

FDI on the international labor market has become one of the biggest concerns, especially among many OECD countries, due to the problem of the deterioration of labor market conditions in many developed countries. Rodrik (1996) states countries with low labor standard, usually less-developed countries, are "a haven for foreign investors" (p. 57) because less-developed countries can provide much cheaper costs of production from costs of raw materials to labor costs. In addition, Freedman et al. (1992) argue that foreign investors much prefer less-developed countries because they tend to have weaker union representations, which would help request strict labor-law enforcement. Moreover, sometimes, there is simply lack of effective labor regulations in those countries. Those characteristics of less-developed countries seem to facilitate the incident of child labor.

However, some research finds that great inflow of FDI actually helps reduce child labor in less-developed countries. Multinational corporations tend to adopt voluntary codes of conduct that limit or ban the use of child labor in their production (Neumayer & de Soysa, 2004) in order not to damage their brand names. Also, recent anti-child labor movements mainly led by radical human right activists, trade unions, and the media pressured multinational corporations to obey

the child labor law (Spar, 1998). Multinational corporations have to ban or, at least, limit the use of child labor in order to be accepted without hurting their name values. In addition, the inflow of FDI may increase human capital by demanding skilled workers who can work in corporations in less-developed countries (Gaston & Nelson, 2002) that facilitate employment of adults who have attained a decent education, and thereby eventually promote children's education.

2.4.2.6 Industrialization & urbanization

Harris and Todaro (1970) discuss the internal migration and urban unemployment induced by industrialization. They argue that rural-urban migration will increase due to the difference in wages between urban and rural areas. Industrialization, therefore, may facilitate urbanization causing overcrowding cities, which makes many people end up either unemployed or in unproductive employment in the informal sector, which consequently increase in child labor (Levinson, Anker, Ashraf, & Barge, 1996) because urbanization in many less-developed countries are much faster than industrialization (Todaro, 1989). Hiraoka (1997) empirically studies the level of child labor and urbanization in India and explains that urbanization increased the level of child labor. Consequently, this urbanization problem creates more child labor in cities, especially in the informal sector such as street trades, because those children need to support their families' survival (Hindman, no date).

On the other hand, however, many economists also support the idea that industrialization overall brings development which "improves nations' well-being along a number of dimensions, including education quality and attainment" (Federman & Levine, p.1). Many researchers point out that changes in the nature of production (technological advancement) lead to the eventual decline in the proportion of children's workforce with historical evidence due to increasing the wage differential between adult and child labor (Delap, 2001; Hazan & Berdugo, 2002). With a

nation's industrialization, most of the labor sectors, including the agriculture sector, are industrialized and mechanized, which requires a skilled and literate labor force. Federman and Levine (no date) find that growth in industrial employment at the district level is positively correlated to both higher school enrollment and lower youth labor participation in Indonesia while they also find that a female manufacturing worker in the household is correlated with lower enrollment of female youth but higher enrollment with male enrollment.

Some researchers study the relationship between the process of industrialization and child labor. Although on the initial phase of industrialization, an increase in unemployment (Lewis, 1954) and increase in child labor (Hindman, 2002) tend to be observed, both unemployment and child labor will decrease in later stages.

Also, economic returns to education tend to be higher in urban areas because there are more job opportunities and options available for the educated in urban areas. Industrialization tends to bring more skill-required job opportunities, which may encourage people to acquire education as Buchmann & Brakewood (2000) find that school demand could be increased by providing employment opportunities for educated adults. This tendency may withdraw children from the work place and put them in educational settings. Another way of looking at a return to education is introduced by Hazan & Berdugo (2002). They explain that technological advancement, which eventually leads a country to economic development, causes a wage difference between adults and children, which induces parents to substitute child education for child labor and reduce fertility. Therefore, even in their analysis, child labor will be reduced as well as the fertility rate as a country becomes more industrialized with technological advancement.

2.4.2.7 Labor market structure

National labor market structure may have distinctive features related to child labor and school enrollment rates. Depending on the level of industrialization of a country, a labor market structure of a country varies considerably even among countries with similar level GDP.

It is well known that many children are engaged in labor in the agricultural sector, especially during the peak season in rural areas in less-developed countries. Those children have to skip schools during the peak season to help their parents and tend to repeat the same grade over time and eventually drop out of schools. In the manufacturing sector, children may be withdrawn from factories once mechanization is promoted because those jobs may require more education and skills. This tendency may also provide more job opportunities to educated adults who once may have been unemployed. This may change people's needs and perception to educating children. Thus, school enrollment rates may increase. However, if mechanization/industrialization is not promoted, many small manufacturing factories may keep employing young children. Those small factories are often very difficult to control with regulations. Service sectors can also temporarily provide easy unskilled jobs to children as well, such as dish washing in a restaurant or a hotel. This sector is also difficult to control using the government's regulations and laws. Therefore, the size of the national service sector may have a negative impact on child labor and school enrollment. The informal sector is the sector where many children in urban areas can easily find their employment since it is hardly possible to control the informal sector with regulations. The informal sector is almost out of the governments' reach in most of the less-developed countries. Therefore, a larger contribution of the informal sector to the national economy may imply more employment opportunities for children (Buchmann & Brakewood, 2000; Swaminathan, 1998).

Another interesting measurement in the labor market structure is women's labor force participation. Women's employment can have a positive or negative influential factor on both the school enrollment rate and the rate of child labor. If mothers have employment outside of the home, daughters may need to substitute for the mother's role by doing housework and taking care of younger siblings, which keeps daughters away from schooling. Contrary to this and more commonly assumed is the idea that mothers' employment may prevent children from participating in the labor force and facilitate children's schooling, since families' financial situation could be better off than families in which mothers stay home without earning incomes, and those mothers with employment may know more about the importance of education. Moreover, more women's present employment may give parents and girls a better future prospect of a higher possibility of girls' employment opportunities, which may encourage parents to send their daughters to school. There also can be a negative impact on the rate of child labor. Some mothers bring their children to work because there is nobody who can take care of their children. Eventually, those children start doing the same job with their mothers, as often observed in the industries such as fruit-picking and carpet-knitting.

2.4.2.8 Credit constraints

Credit constraints limit poor families' financial options, which induces parents to make children work (Ranjan, 2001). As discussed earlier, poor families prefer to have various income sources in order to sustain income shocks since many poor people, especially in rural areas in less-developed countries, do not have any access to institutionalized loans. Income from children's labor makes families' financial situations slightly but surely more stable. Dehejia and Gatti (2002) investigate the relationship between child labor and access to credit across countries and successfully show the existence of a significant association.

In addition to critical needs of income from children's labor, many poor parents without access to credit cannot afford to send their children to school due to direct costs of schooling. As stated earlier, although many countries today claim they offer free public compulsory education, the reality does not correspond. Textbooks, stationary, PTA fees and uniforms are often not provided without any charge in many less-developed countries. Those expenses prevent children from attending schools. Therefore, it can be argued that, with a higher level of credit constraints, the rate of child labor would tend to be higher and school enrollment rate would tend to be lower.

2.4.2.9 Literacy rate

As discussed in the section of human capital theory, investment in human capital is one of the very important factors for a nation to develop economically. In many less-developed countries, the literacy rate is very low because the educational sector was not paid much attention and was not invested in for a long time as an important sector for investment for the sake of national development. A low literacy rate is often said to be one of the major impediments to economic development in many countries (Alderman, Orazem, & Paterno, 2001). Ray(no date) shows that educating adults has a strong, positive influence on both child labor and child education at the micro level. Uneducated and illiterate adults not only have much fewer opportunities to find skilled employment with higher wages, but also tend to know much less about the importance of education for their children for their socio-economic upward mobility. Moreover, literate adults tend to be more productive in the workplace (Hussain & Mashus, 2003) and make reasonable and better decisions with available information and resources. Therefore, it can be assumed that

the more the population of a country is educated (the higher the literacy rate is), the more a country is economically developed, consequently with less child labor. [10]

2.4.2.10 Fertility rate

Fertility rate is one of the good indicators of economic development of a country that seems to influence child labor and school enrollment. When the economy is in early stage of development, child labor tends to be abundant and fertility rate tends to be high (Hazan & Berdugo, 2002). Poorer parents also tend to choose quantity of children rather than quality (Chakraborty & Das, 2003) in order to have more income sources from their children. When the fertility rate is high, the investment in each child becomes lower, which may lower school enrollment rates. Also, a higher fertility rate usually implies parents' expectation of financial contributions from their children. It is commonly observed that the fertility rate becomes lower once a nation has economically developed. Therefore, a higher fertility rate may imply a higher the rate of child labor and lower school enrollment rates.

2.4.3 Political perspective

Political influences on the incident of child labor and school enrollment rates are also important. Political discriminations against certain population of a country, such as ethnic minorities, immigrant families, girls and people from lower caste (social rank), not only make these people's educational returns lower, but also humiliate children and families as a whole in school

[10] There are two common definitions for literacy. One is basic literacy and the other is functional literacy. According to UNESCO Institute for Statistics, basic literacy skill is to be able to read and write, with understanding, a short simple (statement on his/her everyday life. Functional literacy skill is to be able to "engage in all those activities in which literacy is required for effective function of his or her group and community and also for enabling him or her to continue to use reading, writing and calculation for his or her own and the community's development" (http://www.uis.unesco.org/ev.php?ID=5014_201&ID2=DO_TOPIC) Due to the availability of data, basic literacy rate will be used in my analysis.

(UNICEF, 1997), both of which may induce parents to withdraw their children from school and would not help them get out of the poverty circle.

In many less-developed countries, the political system and its organization tend to be far from democratic. Few elites tend to control the nation politically as well as economically and socially. This tends to be hereditary as well. Maffei et al. (2004) try to explain, by developing a political-economic model, why governments in many less-developed countries do not always choose the most efficient/effective policy to combat child labor. They show that, in countries with repressive political regimes, child labor, "autocratic governments dominated by well-educated elites have no incentive to strictly enforce any child labor regulations since doing so would increase the supply of skilled labor with detrimental effects on the wage rate of the ruling elites' clans" (p.26). Therefore, they conclude that the more repressive the government is, the higher the incident of child labor in a country. Regulations created by elites for their own sake tend to be favorable/relevant to the elites and their lives and unfavorable/irrelevant to the lives of the oppressed. In addition, the people in more democratic countries may be more interested in participating in political activities in order to improve their lives, which may facilitate obtaining an education.

The level of corruption is another important measure of a government's efficacy and effectiveness, which affects the incident of child labor and school enrollment rates. Corruption – "abuse of public money via embezzlement and nepotism" (Parajuli, 2001, p.7) – largely prevails in many less-developed countries. Many studies show the negative impact of corruption on national economic growth and economic efficiency, while others say that some degree of corruption can be good because it greases the wheels of bureaucracy and makes it function with underpaid civil servants who are not otherwise motivated. At the theoretical level, Dimari and

Le Van (2002) show that corruption that takes place in the "laissez-faire" bureaucracy could lead to collapse and anarchy in the national economy. Empirically, for example, Mauro (1995) finds that a higher level of corruption is strongly associated with lower economic growth rates of a country. As stated earlier, national economic growth is probably one of the very important and effective factors to reduce child labor and increase school enrollment rates; on the other hand, the influence of high levels of government corruption on national economic growth alone seems to be one determining factor on the incidence of child labor and low school enrollment rates. Moreover, some researchers study the direct impact of corruption on the educational sector. Mauro (1997) finds that corruption also has an adverse effect on the allocation of public spending on education and health. Parajuli (2001) also points out that one of the major problems of educational ineffectiveness in Kenya is the prevailing corruption happening from the micro school level to the macro national government level. Although there is no empirical research conducted to investigate the relationship between child labor, school enrollment rates, and the level of corruption, considering those findings, it seems that a high level of government corruption has a negative impact on the child labor and school enrollment rates.

The quality of governance is also important. Even though a country has established the child labor law and/or compulsory education law, they are not effectively enforced and sometimes ignored in many less-developed countries due to various reasons such as incompetence of civil servants and the inadequate bureaucratic quality. Enforceability largely depends on the government's capacity, which tends to be weak in many less-developed countries because such issues as child labor are often not their priorities (Neumayer & de Soysa, 2004). A high level of corruption and non/low-democratic governance discussed above also help weaken the governance effectiveness.

Interestingly, legal origin[11] seems to have an influence on economic growth and eventually the level of child labor. By studying 49 countries, La Porta et. al. (1998) find that legal rules that protect investors and the enforcement of legal rules differ systematically by legal origin. Most legal systems in the world originated from English, French, German, or Scandinavian laws. According to David and Brierley (1985)[12], "English law is common law, made by judges and subsequently incorporated into legislature" and "French, German, and Scandinavian laws, in contrast, are part of the scholar and legislator-made civil law tradition"(cited in La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998, p.1131). Findings from La Porta et. al. show that laws that originated in the English common law protect both shareholders and creditors most, while laws that originated in the French civil law are the least protective. They also find that the legal systems that originated in French law have the lowest enforceability. These negative impacts of French-originated laws make the capital market much smaller in a country. National economic development may be impeded by a smaller capital market, but this does not contribute to reducing child labor. Therefore, it is assumed that English-originated laws common law have the most positive influence on child labor and the French-originated ones have least positive impacts on child labor.

The number of women in parliament seems to relate to the rate of child labor. Mookerjee and Orlandi (2004) find that a larger number of women in parliament is related to a lower rate of child labor since women are usually more concerned about children. In addition, larger number of women in the parliament also reflects the cultural openness to women, which may relate to girls' education.

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[11] The definition of legal origin is the origin of the Company Law or Commercial Code in a country. (Natiomaster)
[12] David, R, and Brierley, J. (1985). *Major Legal Systems in the World Today*. London: Stevens.

The government's commitment to public health is introduced as a factor related to child labor and school enrollment. As Cingo et al. (no date) suggests, a government's public health expenditure can induce parents to have fewer children and to spend more for each child, which eventually reduce the fertility rate and child labor. Reducing the fertility rate may also induce a higher school enrollment rate since parents spend more for each child. A lower fertility rate can be brought about by a government commitment to public health to some extent, as well as economic advancement as discussed earlier.

There is also a political problem caused by lack of education of the populations in many less-developed countries. Dee (2003) states that educated adults are more likely to have civic participation. They tend to know more about their duties and rights. Therefore, the countries with higher adult literacy rates seem to have higher school enrollment rates and lower incidences of child labor. In addition, it is often found that influence from educated mothers is much bigger than that from educated fathers in terms of children's educational opportunities. Much research found evidence that educated mothers are more socially and politically committed to education for their children, especially daughters (LeVine, 1987), while A. Basu (1993) shows his concern that educated mothers have more probability of finding a job outside the home, which increases the probability of their daughters substituting education for housework. Urbanization is also a considerable indicator. As mentioned, people in urban areas tend to be more educated, which may imply that they are more aware of their political rights. Contrarily to the urbanization influence on child labor and school enrollment rates in an economic perspective, urbanization may have a positive influence on child labor and school enrollment rates.

The existence of child labor law shows the government commitment to the issue of child labor to some extent, which may positively affect the rate of child labor. At the same time, as

discussed in the previous chapter, many researchers doubt the effectiveness of a child labor law that totally bans child labor. Also, even if a country establishes effective legislative interventions, it is another issue if the government is capable or willing to enforce the law effectively.

The influences of those factors are not encouraging at all in many less-developed countries, because their negative influences are commonly prevailed nation-wide. Those characteristics of the countries imply that it is much harder for the disadvantaged in those less-developed countries to socially/political/economically mobilize upwards than those in countries with more democratic political systems. Child laborers and their families are not exceptions. Many of them are from one of those disadvantaged groups.

Assuming that one country grows economically, the poor and the disadvantaged may stay as they are without much improvement of their lives if its government abuses their dominant political power, is highly corrupted, and does not appropriately implement democratic policies or regulations such as income distribution policy and compulsory education law. Thus, although economic growth may be one of the critical factors that helps a country decrease child labor and increase school enrollment rates, political factors, especially a government that is committed to the public good, seems as important as economic growth.

2.4.4 Educational perspectives

Both eliminating child labor and providing education for all children are essential for the well being of individual human beings and nations. Thus, education is, as often stated, considered an effective strategy for reducing/eliminating child labor since the early 1990's. Spreading educational opportunity throughout the country may not only increase national human capital but

also facilitate to reducing child labor. However, the relationship between child labor and school enrollment is still ambiguous. Cunningham and Viazzo (1996) point that establishing compulsory education did not significantly contribute to eliminating or reducing child labor during the industrial revolution in Britain. De Herdt (1996) also finds that an increase in number of the schools did not help to decrease the number of child laborers in the period of industrialization in Belgium. These historical findings may reflect the fact that many children attend schools while working. Although promoting schooling can be an effective strategy both to increase human capital and to reduce child labor, it may need to be implemented properly with other complementary policies to stimulate a national and individual economic situation.

Since the 1990 Jomtien Declaration for Education for All, many countries have established compulsory education. Although Dessy & Pallage (2003) have advocated the imposition of compulsory education as a means to combat the incidence of child labor, and although establishing a compulsory education law is essential to promote basic education throughout the country, the availability of a compulsory education law itself seems not to be enough to influence the rate of child labor and school enrollment rate; Bellettini and Ceroni (2004) point out that effects of a compulsory education law cannot be seriously measured and discussed "without taking into account the key issue of enforceability, since most less-developed countries do not have the administrative capacity to fully enact child labor and compulsory education laws" (p.236). The same discussion can be led in terms of an anti-child labor law. These laws are necessary tools but not sufficient to achieve universal basic education and to combat child labor by themselves. Especially, as discussed in the previous section, ratifying international conventions toward child labor and education may or may not exactly imply

governments' commitment, since ratification does not come along with a penalty for failing to enforce the actual laws and regulations.

Durations of compulsory, primary, and secondary education may be related to prevalence of child labor and low primary and secondary school enrollment rates. If those durations are considered to be too long by students and their parents, it may discourage school attendance and, consequently, encourage child labor. There is little research conducted to investigate the effects of the periods of education. Therefore, this area needs further research.

Also, primary and secondary school enrollment rates of a country may affect themselves and each other. Higher school enrollment rates implying that many children are in schools may give parents pressure to send their children to schools even if they may be facing difficult financial situations. Also, high school enrollment rates make parents and children take it for granted that school-aged children are supposed to go to school without exceptions. Moreover, high primary school enrollment rates may imply high primary completion rates. Completing primary education could motivate students to attend secondary schools and motivate their parents to send their children to secondary schools. High secondary school enrollment rates may also positively affects primary school enrollment rates. Obtaining secondary education is obviously much more common in a country with high secondary school enrollment rates. In order to obtain a secondary education, completing a primary education is necessary, which increases primary school enrollment rates.

In many less-developed countries that provide low quality of education, school attendance and learning/educational progress are not synonymous (Anker, 2000; Lieten & White, 2001). As a result, even though children complete primary schools, it is not promising that they will become fully literate. As a result, as Cingo et al. (2000) state, returns to education turn out

very low, and employment prospects after completing formal school are often not very optimistic, which consequently makes parents decide to place their children in the labor market instead of school and/or discourage children to attend schools. According to NSSO (1989)[13], a large-scale survey conducted in India finds that only 45 % of the children studied gave economic reasons, including domestic housework, for their non-participation in schooling, and that about 25% of them point to poor school quality as the reason for their non-participation (cited in Govinda, 2003).

Disparity in needs for education between urban and rural areas is another crucial issue in many less-developed countries that causes problems for rural children. Educational opportunities sometimes do not reach rural children's hands. There are sometimes simply no schools available for children, and hence children have to seek a job as their only option to avoid wasting their time (Anker, 2001; Siddiqi & Patrinos, 1995). In addition, quality of education is more problematic in rural areas than in urban areas. In urban areas, in general, the quality of education tends to be better (Dutta, 2002), the curriculum is much more relevant to more students' lives, and more educated teachers are employed. In contrast, school curriculums tend to be irrelevant to rural children's life style and they do not teach any practical survival skills to help lead a rural life (Anker & Melkas, 1996; Stadum, 1995). In some schools, especially in rural areas, there are too few teachers (teacher-student ratio is very high), and many of them are neither well trained nor well motivated to devote themselves to educating children (UNICEF, 1997). As a result, even if school is available, quality of education provides no advantage or incentive for rural children to attend school and sacrifice their foregone income opportunities (Siddiqi & Patrinos, 1995).

[13] NSSO (National Sample Survey Organization). (1989). National Sample Survey 1989: Draft Report 365. New Delhi: Department of Statistics, Government of India.

Lack of the national expenditure to education to improve the quality/quantity of education provided brings another problem. In many countries, most of the national budget for the educational sector goes to teachers' salary. Moreover, expenditures on the educational sector in less-developed countries tend to be smaller than those in developed nations and tend to be much lower than those on the military sector. Without enough financial resources, it is not possible to improve both the quality and quantity of education. In addition, due to the corrupted government and ineffective governance systems, these insufficient educational expenditures could be used wastefully.

Lastly, the contribution of the private sector should be also mentioned. Although public schooling is supposed to be provided to all the population of the nation, some parents choose private schooling for their children due to various reasons, such as inaccessibility to nearby schools, inflexible rigid curriculum and school calendar, and poor quality. More flexible curriculum of private schooling makes it easier for children to attend schools, especially in rural areas. Moreover, some private schools subsidize students from poor households to easy families' financial burdens. The influence of privatization may be stronger on the school enrollment rate than on the rate of child labor, since the majority of children in less-developed countries work while also attending schools. Thus, less influence on the rate of child labor could be predicted.

2.4.5 Socio-cultural perspectives

Cultures and social norms play a crucial role in influencing the incident of child labor and school enrollment. It is also well known that, in addition to economic reasons, culture, social norms, traditions, religion, and beliefs contribute to furthering children's school attendance and

increasing child labor (K. Basu, 1999; Jensen & Nielsen, 1997; Siddiqi & Patrinos, 1995). As Burra (2003) states, social and historical circumstances, which create the culture of a society, "determine the range of choices that communities, families, and individuals are presented with" (p.82). In many economically and socially backward areas, child work/labor is not seen as exploitative (K. Basu, 1999; Grootaert & Patrinos, 1999). In some cultures, children's work is regarded as a process of socialization, a means of acquiring survival skills in the environment where they make a living (Grootaert & Patrinos, 1999; Lieten, 2001) and a way of building children's self-esteem (Collins, 1983). Also, it is sometimes seen as a means of discipline and training for children (Stadum, 1992[14], cited in Stadum, 1995). In addition, especially in Africa and Asia, according to a UNICEF report (UNICEF, 1997), "children are traditionally regarded, first and foremost, as members of the family, whose duties and responsibilities are seen as central to their development and may seem to take precedence over their individual rights" (p.5-6). Burra (2003) also argues that in some societies children can be seen by parents as their property and that children owe duties and responsibilities to parents that are usually embedded in cultural mores and social norms.

It is not only parents' views on children working that hinder school attendance and facilitate child labor. Parents' view on children's education may also have negative impacts on school attendance. It is not necessarily true that all the parents in the world value education. A negative attitude towards schooling sometimes discourages parents from sending their children to school (Anker & Melkas, 1996).

What can be the indicators of cultural influence that may affect the incident of child labor and school enrollment rates? Religious beliefs seem to be one of the indicators that can

[14] Stadum, B. (1992). Poor women and their families: Hard working charity cases. 1900-1930. Albany, NY: State University of New York.

influence schooling and work. As Weiner (1991) mentions, for example, traditional Hindu notions of social rank and hierarchy facilitate distinguishing between people who do manual labor and people who are educated in order not to lead such a life. This kind of religious notion can exist latently among not only elites but also those who are socially and economically oppressed. Religions also seem to influence political and economic spheres of a country, which indirectly affects the incident of child labor and school enrollment rates. La Porta et al. (1998) find that religions also influence government performance. According to them, countries with high proportions of Catholics and Muslims exhibit inferior government performance. Guiso et al. (2003) find religious beliefs are related to good economic attitude leading to higher per capita income and economic growth, which helps reduce child labor, while also finding religious people tend to be racist and sexist, which may oppress education for minorities and girls. Religious and ethnic fractionalizations also seem to be influential from a sociological point of view. Annett (2001) finds that the higher the level of religious and ethnic fractionalizations the more unstable governments become, which leads to less effective and efficient governance. Lower ethnic fragmentation of a society is also found to facilitate good public provisions (Alesina & La Ferrara, 2004) and better government performance (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998). Regional index may have some influence on child labor and school enrollment since countries in the same region tend to share culture and traditions to some extent, such that Asian and African countries seem to be much more group/family oriented than European and American countries. In addition, urbanization of a country is also an important factor. It tends to seize cultural influence on people. Traditional cultures and social norms tend to play less important roles in urban areas compared to those in rural areas. Cultural openness toward women, which is indicated by the percentage of female labor force, female literacy rate,

and women in the parliament in my study, may influence educational opportunities, especially for girls. The more culturally open to women, the more encouraged to educate girls. All those factors may have a positive/negative influence on child labor and school enrollment.

Although it is very clear that socio-cultural factors such as social norms, traditions and religious beliefs all play significant roles in influencing child work/labor and school attendance, it is first difficult to measure the degree of their influence, especially with the conventional micro-level research that uses household surveys. Second, even though we could measure the degree, it is difficult to set up effective policies dealing with these elements because people's mindsets and sometimes identities are the ones that have to be somewhat changed or at least adjusted.

2.4.6 Culture of poverty

Culture of poverty is one of the interesting ways of analyzing people's behavior. Lewis (1968) first introduced this notion as 'culture of poverty' by analyzing the poor people's lifestyle and decision-making. Lewis defines the culture of poverty as follows:

> "The individual who grows up in this culture has a strong feeling of fatalism, helplessness, dependence and inferiority … Other traits include a high incidence of weak ego structure, … a strong present-time orientation with relatively little disposition to defer gratification and plan for the future, and a high tolerance for psychological pathology of all kinds" (p.411).

According to Lewis, this culture is only observed in a "pre-welfare state" where "[t] he setting is a cash economy, with wage labor and production for profit and with persistently high rates of unemployment and underemployment, at low wages, for unskilled labor" (Lewis, 1968, p.408). The majority of those so-called poor areas in many less-developed countries are under such condition.

Seligman[15] (1973) calls the attitudes of the poor "learned helplessness" after experiments with caged dogs (cited in Busby & Busby, 1996). He finds that human beings are susceptible like dogs; they can eventually be psychologically paralyzed by having the same frustration over an extended time period. Busby's provide an important understanding of the reason why the poor keep failing to maximize their resources and opportunities; the poor tend not to consider their resources and opportunities as available options (Busby & Busby, 1996).

This analysis of people's mindsets seems to be able to be adopted to analyze the socially disadvantaged as well as the poor. Poor and/or disadvantaged parents may accept the situation as it is; they take for granted the fact that children work without critically thinking about the outcomes. Much research exposes the fact that many fathers spend additional income for alcoholic beverages and for prostitution, while they hope that their children receive education. They may take it for granted that their children work with no option, and that is the life they have. They may not know how to plan their life for the future because they tend to be present-oriented and do not conceptualize what they have (resources and opportunities). And, moreover, they may not even realize the fact that they are not maximizing their resources and opportunities in the long run and the fact that they may be able to improve their standard of living. Fuller et al. (1995) find that the risk of daughters leaving school is more strongly influenced by mothers' social commitments than by household economics, based on the Southern African data. They find no effect of household labor tasks on girls' probability of leaving school while there are only a few wage-labor options for those children who leave schools. Although parents' social commitment can be created or influenced by many elements, including culture, economic

[15] Seligman, M.E.P. (1973). Fall into helplessness. *Psychology Today*, 7, 43-48.

situation, and so on, it seems somewhat independent of other elements once it is built in parents' minds.

Although this concept of the behaviors or mindsets of the poor is probably accurate, the concept is often criticized for blaming not the social/political systems and/or the governments that are apparently responsible for the situation to a large extent, but the poor themselves for their decision-making. No improvement of their socio-economic status due to economic and political restrictions and constraints seems to have enormous influence on those people's mindsets. Just like an experimented caged dog that eventually gives up trying, it can be said that a dog was forced to act in that way by the researcher who wanted to examine his behavior. Thus, it may not be exaggerating to say that the political/social/economic systems have set the passive and pessimistic mindset and behaviors and minds of the poor and the socio-politically disadvantaged.

2.4.7 Summary

Table 1 is the table summarizing the influencing elements to the rates of child labor and school enrollments, which are discussed in this subsection.

All of those perspectives make valid points, but none of them by themselves fully explain the mechanism. Biased, one-sided ideas will not create the best-suited policy to eliminate/reduce child labor and promote school enrollment/retention. What is important seems that all those perspectives should be integrated into one picture and taken into consideration depending on the situations, locations, histories, etc, when policies are discussed and created.

Table 1 Summary table of influencing elements to child labor and school enrollment rates

Influencing elements	Economic	Political	Educational	Socio-Cultural
GDP per capita	✓			
GDP per capita growth rate	✓			
Economic Inequality	✓			
Inflation rate	✓			
Globalization/international trade	✓			
Unemployment rate	✓			
Foreign direct investment	✓			
Industrialization	✓			
Urbanization	✓	✓	✓	✓
Labor market structure (Employment in agriculture, industry, and services)	✓			
Informal economic sector	✓			
Women labor force	✓			✓
Credit constraint	✓			
Fertility rate	✓	✓		
Adult literacy rate (male/female)	✓	✓		✓
Quality of Governance		✓		
Level of Corruption		✓		
Level of Democracy		✓		
Legal origin		✓		
# of women in the parliament		✓		✓
National expenditure on public health		✓		
Existence of child labor law		✓		
Existence of compulsory education law			✓	
National expenditure on education			✓	
Quality of education			✓	
Quantity of education			✓	
Privatization of school			✓	
Religion (Major religion)				✓
Religion (Fractionalization)				✓
Ethnicity (Fractionalization)				✓
Region				✓

3.0 DATA AND METHOD

This chapter describes the research questions, the data analysis method and model, sample countries, data collection and sources, description of the variables (dependent variables, independent variables, and feasibility and final data set),sample statistic for the variables, and some methodological and data limitations in this study.

3.1 RESEARCH QUESTIONS

My research questions are:

1. Is there any relationship between school enrollment rates and the rate of child labor?
2. What country characteristics can explain the prevalence of child labor and low school enrollment rates?
   - What economic characteristics of a country can explain the prevalence of child labor and low school enrollment rates?
   - What political characteristics of a country can explain the prevalence of child labor and low school enrollment rates?
   - What educational characteristics of a country can explain the prevalence of child labor and low school enrollment rates?

- What socio-cultural characteristics of a country can explain the prevalence of child labor and low school enrollment rates?

3. Does the level of government expenditure on primary and secondary education affect the rate of child labor and/or primary and secondary school enrollment rates?
4. Are there any similarities and differences of national characteristics that affect school enrollment rates between primary and secondary levels?
5. Are there any similarities and differences of national characteristics that affect school enrollment rates between females and males?
6. Which of these four factors: economic, political. Educational, or socio-cultural, is most strongly related to child labor and school enrollment rates?

3.2 DATA ANALYSIS METHOD AND MODEL

To answer the research questions, I conducted an unbalanced panel regression analysis (proc mixed in the SAS language). Regression analysis can test a theory about the relationship between two random variables (dependent and independent variables) (Kenkel, 1989). A panel analysis implies a combination of time series and cross-sectional analyses. Thus, panel data analysis with repeated observations of cross-sections allows the researcher to study the dynamics of change in a fairly short time period by improving the efficiency of the estimates, and allows for the analysis of many important questions that cannot be addressed with either simple cross-sectional or time-series data sets (Hsiao, 2003; Yaffee, 2003). Unbalanced analysis is used because the data sets obtained from various sources are incomplete due to randomly missing observation (Baltagi, 2001). Mixed regression models (proc mixed) in SAS can handle

repeatedly-measured observations over time and can test a hypothesis about the relationship between two random variables (dependent and independent variables). Therefore, as Edmonds (2003) states, the nature of unbalanced panel regression analysis makes it clear which of the independent variables(economic, political, educational and social ones) are more strongly related with the dependent variables (the rate of child labor and primary/secondary school enrollment rates) than other variables when there are repeated measured observations over time.

Following this, different points are given to all the significant variables depending on the significance level (0.5 point for marginally significant variables, 1 point for significant variable at 10 % level, 2 points for significant variables at 5 % level, and 3 points for significant level at 1 % level) in order to make it easy to compare primary and secondary enrollment rates, and male and female enrollment rates. This helps answer the research Questions 4 to 6.

To gauge the contribution of each independent variable to the rate of child labor and/or the primary/secondary school enrollment rates (dependent variables), I constructed the following regression equation to estimate parameters.

$$Y_{ij} = \alpha_0 ij + \alpha_1 X_{1ij} + \alpha_2 X_{2ij} + \alpha_3 X_{3ij} + \ldots + \alpha_n X_{nij} + \varepsilon_{ij} \qquad (1)$$

where Y represents the rate of child labor or the school enrollment rates (primary/secondary, male/female/total), $X_{1,2,\ldots n}$ represents contributing elements to the rates (independent variables), ε represents error term, i represents an individual country in a sample, j represents a year, and n represents the number of independent variables in the equation. Categorical variables[16] are entered in the model as dummy variables.

[16] According to Weisstein,(no date) a categorical variable is defined as a variable which belongs to exactly one of a finite number of categories.

I adopt the mixed regression model, which uses the procedure of maximum likelihood estimation (MLE)[17]. Akaike Information Criteria (AIC) was used to choose the best covariate structure for all the equations, in order to find the best fitted model for my analysis.

3.3 SAMPLE COUNTRIES

One hundred and six countries are selected as the sample. These countries are selected because some degree of child labor was observed in these 106 countries between 1990 and 2003 according to the World Development Indicators. Although child labor was still found in most countries in the sample in 2003, the indicator reports no child labor was currently found in some countries, such as Oman and Romania. Table 2 is the list of the 106 sample countries.

My study is conducted in the period of 1990 and 2003, because educational policy became considered not only a more effective strategy to reduce child labor, but also an effective strategy to promote national and human development in the early 1990's.

[17] The procedure of MLE is to maximize the probability of accuracy of the model based on the given data set.

Table 2 Sample countries

Afghanistan	Dominican Republic	Macedonia, FYR	Romania
Albania	Ecuador	Madagascar	Rwanda
Algeria	Egypt, Arab Rep.	Malawi	Senegal
Angola	El Salvador	Malaysia	Serbia and Montenegro
Argentina	Equatorial Guinea	Maldives	Sierra Leone
Bangladesh	Eritrea	Mali	Solomon Islands
Belize	Ethiopia	Mauritania	Somalia
Benin	Gabon	Mauritius	Sri Lanka
Bhutan	Gambia, The	Mexico	Sudan
Bolivia	Ghana	Mongolia	Suriname
Bosnia and Herzegovina	Guatemala	Morocco	Swaziland
Botswana	Guinea	Mozambique	Syrian Arab Republic
Brazil	Guinea-Bissau	Myanmar	Tanzania
Burkina Faso	Haiti	Namibia	Thailand
Burundi	Honduras	Nepal	Timor-Leste
Cambodia	India	Netherlands Antilles	Togo
Cameroon	Indonesia	Nicaragua	Turkey
Cape Verde	Iran, Islamic Rep.	Niger	Uganda
Central African Republic	Iraq	Nigeria	Uruguay
Chad	Italy	Oman	Venezuela, RB
China	Jamaica	Pakistan	Vietnam
Colombia	Jordan	Panama	West Bank and Gaza
Comoros	Kenya	Papua New Guinea	Yemen, Rep.
Congo, Dem. Rep.	Lao PDR	Paraguay	Zambia
Congo, Rep.	Lesotho	Peru	Zimbabwe
Costa Rica	Liberia	Philippines	
Cote d'Ivoire	Libya	Portugal	

(Alphabetical order)

3.4 DATA COLLECTION AND SOURCES

Data on the dependent and independent variables are collected from various sources since there is no dataset that provides all the variables necessary for my study. The majority of the data are taken from the World Development Indicators database provided by the World Bank. All the education-related variables, such as the literacy rate and net school enrollment rate, are obtained from the EdStats, the World Bank's comprehensive Database of education statistics (http://devdata.worldbank.org/edstats/cd5.asp). Those databases compile data from various resources including the UNESCO Institute for Statistics (UIS), the Organization for Economic Co-operation and Development (OECD), and the International Monetary Fund (IMF). Some variables measuring the quality of governance are drawn from the Governance Indicators also supplied by the World Bank (http://www.worldbank.org/wbi/governance/pdf/2004kkdata.xls). Some political variables are extracted from the "Freedom in the World country rating" by a non-profit organization, the Freedom House (http://www.freedomhouse.org/ratings/allscore04.xls). Variables of religious and ethnic fractionalization are calculated by Anthony Annett in his article "Social Fractionalization, Political Instability, and the Size of Government". The International Labour Office's database, ILOLEX(Database of International Labour Standards) provides the convention-ratification years for the ILO Worst Forms of Child Labor Convention No. 182 and ILO Minimum Age Convention No. 138 for each country (http://www.ilo.org/ilolex/english/docs/declworld.htm). The information about the informal economic sector is obtained from 2005 Index of Economic Freedom by the Heritage Foundation. The percentage of women in the parliament is taken from the Statistical Archive: Women in national Parliaments provided by Inter-Parliamentary Union (http://www.ipu.org/wmn-e/world-

arc.htm). Major religion and legal origin are drawn from La Porta et al.'s article "Quality of Government". Information about the world region is taken from the website Index Mundi (http://www.indexmundi.com/). Table 3 is the list of the variables collected for my study and the original sources.[18] The definitions for the variables below are described on page 88 – 89.

[18] However, due to the limited data availability, some of these variables are omitted from the analysis. This is discussed in the later section.

Table 3 Variables and original sources

Variable	Original source
Net enrollment rate (%), primary/female	World Bank EdStats
Net enrollment rate (%), primary/male	World Bank EdStats
Net enrollment rate (%), secondary/female	World Bank EdStats
Net enrollment rate (%), secondary/male	World Bank EdStats
% of working children (age 10-14)	World Development Indicator
GDP per capita (constant 2000 international $)	World Development Indicator
GDP per capita growth (annual %)	World Development Indicator
GINI index	World Development Indicator
Inflation, consumer prices (annual %)	World Development Indicator
Exports of goods and services (% of GDP)	World Development Indicator
FDI, net inflows (% of GDP)	World Development Indicator
Industry, value added (% of GDP)	World Development Indicator
Employment in agriculture (% of total employment)	World Development Indicator
Employment in industry (% of total employment)	World Development Indicator
Employment in services (% of total employment)	World Development Indicator
Legal rights of borrowers and lenders index	World Development Indicator
Labor force, female (% of total)	World Bank EdStats
Urban population (% of total)	World Development Indicator
Female literacy rate (% of males 15 +)	World Bank EdStats
Male literacy rate (% of males 15 +)	World Bank EdStats
Fertility rate	World Development Indicator
Unemployment rates	World Development Indicator
Level of Informal economic sector	2005 Index of Economic Freedom from the Heritage Foundation
Governance - Voice and accountability	World Bank Governance Indicators
Governance - Governance effectiveness	World Bank Governance Indicators
Governance - Regulatory quality	World Bank Governance Indicators
Governance - Control of corruption	World Bank Governance Indicators
Governance - Rule of law	World Bank Governance Indicators
Legal origin	La Porta et al. “Quality of government”
Percentage of women in the parliament	Statistical Archive: Women in national Parliaments from Inter-Parliamentary Union
Health expenditure, public (% of GDP)	World Development Indicator
Duration of compulsory education	World Bank EdStats
Duration of primary education	World Bank EdStats
Duration of secondary education	World Bank EdStats

Table 3 Continued

Variable	Original source
Ratification of ILO Conv. 138 (1973~)*	ILOLEX: Database of International Labour Standards
Ratification of ILO Conv. 182 (1999~)**	ILOLEX: Database of International Labour Standards
Public education expenditure, % of Govt. spending	World Bank EdStats
Public education expenditure as % of GDP	World Bank EdStats
Share for primary education (% of total exp)	World Bank EdStats
Share for secondary education (% of total exp)	World Bank EdStats
Teacher-pupil ratio, primary	World Bank EdStats
Teacher-pupil ratio, secondary	World Bank EdStats
% of trained teachers, primary	World Bank EdStats
% of trained teachers, secondary	World Bank EdStats
Private enrollment share (%), primary	World Bank EdStats
Private enrollment share (%), secondary	World Bank EdStats
Religious fractionalization	Anthony Annett "Social Fractionalization, Political Instability, and the Size of Government"
Ethnic fractionalization	Anthony Annett "Social Fractionalization, Political Instability, and the Size of Government"
Major religion - Catholic	La Porta et al. "Quality of government"
Major religion - Muslim	La Porta et al. "Quality of government"
Major religion - Protestant	La Porta et al. "Quality of government"
Region	Index Mundi

* ILO Minimum Age Convention No.138

** ILO Worst Forms of Child Labor Convention No. 182

3.5 VARIABLES

The variables in my study are selected based on my research questions, the literature review, and availability of the data.

3.5.1 Dependent variables

The dependent variables for the analysis are the rate of child labor and primary and secondary school enrollment rates (female/male). The rate of child labor is drawn from the World Development Indicators, and the net enrollment rates are taken from the World Bank's comprehensive Database of education statistics (Edstats).

The child labor indicator is defined, by World Development Indicators, as a percentage of 10-14 year-old children of their age group who are in the labor force. Therefore, this definition excludes children under 10 years old and over 14 years old. Thus, it important to remember that younger children who are employed or work beside their mothers are not counted in this percentage. However, this indicator also shows the degree of prevalence of child labor in each country. The definition of the variable may not only include children who work full-time, but also children who combine school and work.

For the school enrollment rates, net enrollment rates are utilized for females and males at the primary and secondary levels of schooling. A net enrollment rate is expressed as a percentage of the total population of pupils in the theoretical age group for primary/secondary education who were actually enrolled.[19] Students who are enrolled in different age groups are

[19] In contrast, gross primary/secondary school enrollment rates imply percentages of the populations enrolled in primary/secondary schools regardless of age.

omitted from my analysis. Net enrollment rates can show the efficiency of delivering education to students. Table 4 lists the dependent variables for my study.

Table 4 Dependent variables

% of working children (age 10-14)
Net enrollment rate (%), primary level, female
Net enrollment rate (%), primary level, male
Net enrollment rate (%), secondary level, female
Net enrollment rate (%), secondary level, male

3.5.2 Independent variables

Institutional theorists state that in order for a developing country to take a development path, all the sectors including economic, political, and socio-cultural have to be taken into consideration. In addition, human capital theories explain the importance of education for national and individual development and wellbeing. The latter part of the previous chapter was devoted to the discussion about the predictable variables in those sectors.

As shown in figure 1, the independent variables in the four factors impact independently the rate of the child labor and school enrollment rate and, in addition, they could be influential to each other negatively and/or positively. For example, the inefficient and/or corrupted political system may retard national economic development, and cultural closure to women/minorities may slow down political and economic advancement, both of which may eventually affect the rate of child labor and school enrollment rates.

Based on the discussion, the independent variables are selected for my study and divided into the economic, political, educational, and socio-cultural factors depending on how each variable influences the rate of child labor and school enrollment rates. The economic

variables imply macroeconomic phenomena that may influence the rate of child labor and school enrollment rates. The political variables include measurements of quality of governance, political climate of a country, and some other government characteristics that seem to influence the rate of child labor and school enrollment rates. The educational variables comprise measurements of quality and quantity of education provided in a country and government commitment to education. The socio-cultural variables contain variables that illustrate unique social and/or cultural characteristics of a country that, in turn, may affect the rate of child labor and school enrollment rates. Table 5 shows the effects of independent variables as the economic, political, educational, and socio-cultural factors on dependent variables. Some variables, such as the level of urbanization and adult literacy rate, reflect more than one factor as discussed in the previous chapter.

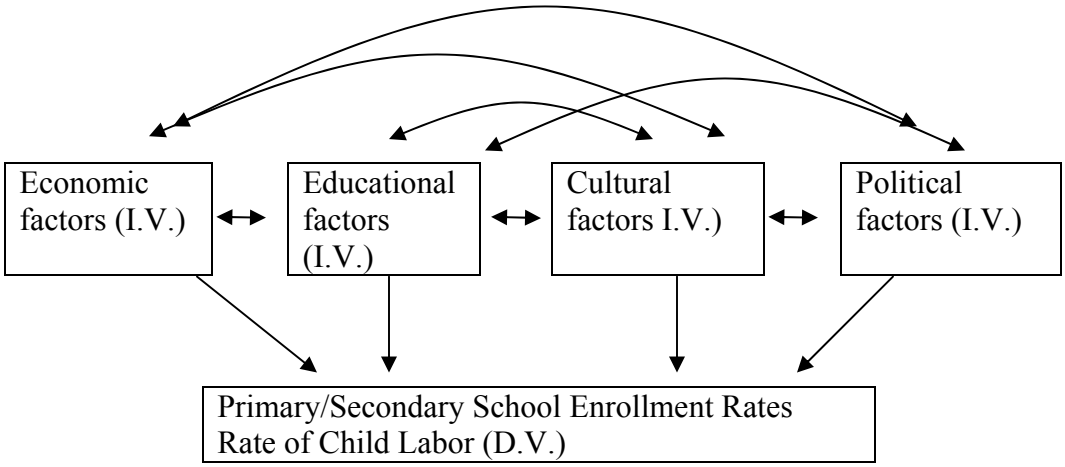

Figure 1 Four factors influencing the rate of child labor and school enrollment rate

Table 5 Independent Variables Related to Child Labor and School Enrollment

Independent Variables	Economic	Political	Educational	Socio-Cultural
GDP per capita	✓			
GDP per capita growth rate	✓			
GINI index	✓			
Inflation rate	✓			
Globalization (Exports of goods and services)	✓			
Foreign direct investment	✓			
Industrialization	✓			
Urbanization (Urban population)	✓	✓	✓	✓
Employment in agricultural (% of total employment)	✓			
Employment in industry (% of total employment)	✓			
Employment in service e (% of total employment)	✓			
Level of activities in the informal economic sector	✓			
Female labor force (% of total employment)	✓			✓
Unemployment rate	✓			
Level of credit constraint	✓			
Fertility rate	✓	✓		
Female literacy rate	✓	✓		✓
Male literacy rate	✓	✓		✓
Governance Voice and accountability		✓		
Governance Government Effectiveness		✓		
Governance Regulatory Quality		✓		
Governance Rule of Law		✓		
Governance Control of Corruption		✓		
Legal origin		✓		
% of women in the parliament		✓		✓
National expenditure on public health		✓		
Ratification of Convention 138 (1973~)*		✓		

Table 5: Continued

Independent Variables	Economic	Political	Educational	Socio-Cultural
Ratification of Convention 182 (1999~)**		✓		
Duration of compulsory education			✓	
Duration of primary education			✓	
Duration of secondary education			✓	
National expenditure education (% of Govt. spending)			✓	
National expenditure on education (% of GDP)			✓	
Share for primary education (% of total exp)			✓	
Share for secondary education (% of total exp)			✓	
Teacher/pupil ratio, primary			✓	
Teacher/pupil ratio, secondary			✓	
% of trained teachers, primary			✓	
% of trained teachers, secondary			✓	
Private enrollment share (%), primary			✓	
Private enrollment share (%), secondary			✓	
Religion % of Catholic population				✓
Religion % of Muslim population				✓
Religion % of Protestant population				✓
Religion (Fractionalization)				✓
Ethnicity (Fractionalization)				✓
Region				✓

* ILO Minimum Age Convention No.138
** ILO Worst Forms of Child Labor Convention No. 182

As the economic variables, GDP per capita, the GDP per capita growth rate, GINI index, the inflation rate, level of globalization (exports of goods and services), unemployment rate, level of foreign direct investment, level of industrialization, level of urbanization (urban population), labor market structure (the employment rates in agricultural, industrial, and service sectors), level of activity in the informal economic sector, level of women labor force rate in the economy, employment rate, level of credit constraint, fertility rate, and adult literacy rate (male/female) are selected. GDP per capita is shown using the constant 2000 US dollar. One variable from the World Development Indicators 'Industry, value added (% of GDP)' is used as an indicator of the level of industrialization. The GDP per capita growth rate, GINI index[20], inflation rate, level of globalization, level of foreign direct investment, level of industrialization, level of urbanization (urban population), labor market structure (the employment rates in agricultural, industrial, and service sectors), fertility rate, and adult literacy rate (male/female) are continuous variables shown as a percentage. The level of credit constraint is shown from 0 to 10 where 0 indicates less credit access and 10 indicates more access. The level of activity in the informal economy is described by a range from 1 to 5, with higher points corresponding to a higher level of activities.

As the political variables, the level of urbanization (urban population), fertility rate, adult literacy rate (male/female), governance - voice and accountability, governance - regulatory quality, governance - rule of law, governance - control of corruption, legal origin, percentage of women in the parliament, national expenditure on public health (% of GDP), ratification year of the ILO Minimum Age Convention No. 138 (1973~), ratification of the ILO Worst Forms of

[20] The Gini index is one of most popular statistics that measures the degree of overall inequality present in an income distribution (Gills, Perkins, Poemer, & Snodgrass, 1996). Although it has its limitations and problems, this is an important variable for illustrating the distribution of the national wealth, which GDP per capita casts into the shade.

Child Labor Convention No. 182 (1999~) are chosen. The level of urbanization (urban population), fertility rate, adult literacy rate (male/female), percentage of women in the parliament, and national expenditure on public health (% of GDP) are continuous variables shown as a percentage. The five governance indicators (voice and accountability, regulatory quality, rule of law, control of corruption) are drawn to measure the overall quality of the governance of a country. According to the original data source (World Bank Governance Indicator). The definitions of those five variables are:

> **Voice and Accountability** includes in it a number of indicators measuring various aspects of the political process, civil liberties, political and human rights, measuring the extent to which citizens of a country are able to participate in the selection of governments.
> **Government Effectiveness** combines responses on the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies.
> **Regulatory Quality** focuses more on the policies themselves, including measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development.
> **Rule of Law** includes several indicators that measure the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts.
> **Control of Corruption** is a measure of the extent of corruption, conventionally defined as the exercise of public power for private gain. It is based on scores of variables from polls of experts and surveys.
> (source: http://info.worldbank.org/governance/kkz2004/q&a.htm)

Those variables are rated in the range of -2.5 to 2.5, with higher points corresponding to better quality. The two variables, ratification year of the ILO Minimum Age Convention No. 138 (1973~) and ratification of the ILO Worst Forms of Child Labor Convention No. 182 (1999~) are selected as an indicator of national commitment to reducing/eliminating child labor, since it is almost impossible to know how many regulations and laws about child work and child

labor exist in all the selected countries. Data is coded as 0 if a country has not ratified the convention and as 1 if the country has ratified the convention. The variable that indicates legal origin is entered as a categorical variable: 1 is entered for laws originated in English law, 2 for laws originated in Socialist laws, and 3 for laws originated in French laws. There is no country with German or Scandinavian originated laws in my sample countries.

The educational variables are duration of compulsory education, duration of primary/secondary education, national expenditure education (% of Govt. expenditure), national expenditure on education (% of GDP), share of expenditure for primary/secondary education (% of total education expenditure), the teacher/pupil ratio, percentage of trained teachers, level of privatization of schools (private enrollment share, % of total students) and level of urbanization. Durations of compulsory/primary/secondary education are shown with the number of the years of each education period. The rest of the variables are shown as a percentage. Instead of using the existence of compulsory education law, durations of compulsory/primary/secondary education are used, since most countries have established the compulsory education law: therefore, it is not useful to try to see its contribution to the rates of child labor and school enrollment rates. However, the durations of compulsory/primary/secondary education vary. Thus, it is much more interesting to investigate if there is any relationship between the rates of child labor, school enrollment rates and durations of education for the future policy planning. The teacher/pupil ratio and percentage of trained teachers are used as a measurement of quality and quantity of education provided in a country. These variables would not fully show the quality and quantity of education, but they are two of the critical variables that can assess some important aspects of the educational quality and quantity.

As the socio-cultural variables, the level of urbanization (urban population), level of women labor force in the economy, adult literacy rate (female), percentage of women in the parliament, percentage of major religion, religious fractionalization, ethnic fractionalization, and regional variable are chosen. The level of urbanization, level of women labor force in the economy, adult literacy rate (female), percentage of women in the parliament, percentage of major religion, religious fractionalization, and ethnic fractionalization are shown as a percentage. The percentage of women in the labor force, female literacy rate, and percentage of women in the parliament are used as measures of openness of society towards women, which, as discussed, influences the rate of child labor and school enrollment rates. As for the major religion, due to the availability of the source, only the percentages of the Catholic, Protestant, and Muslim populations are considered. Other major religions such as Hindu and Buddhism are ignored in my study. As for the regional variable, after collecting the data from the source, I categorized them into Africa, Asia, Europe, Latin America, and Middle East. Then, they are coded as Africa=1, Asia=2, Latin America=3, Middle East=4, and Europe=5.

Lastly, depending on the research questions, the rate of child labor and school enrollment rates can be independent variables. Detailed analysis is discussed in the next chapter.

3.5.3 Feasibility and final data set

Due to the degree of missing data for some variables, I needed to omit some of the independent variables that would make the analysis impossible to run. Those variables are GINI index, the level of credit constraint, public health expenditure as percentages of GDP, level of regulatory quality, and percentages of trained teachers at both primary and secondary education. For example, even the best available data source provides only seventy-three GINI coefficients

where the maximum can be 1484. Below is the table for the final data set that was used in my analysis. (Table 6)

The economic variables used are the employment rates in the agricultural, industrial, and service sectors, foreign direct investments, level of female labor force in the economy, male/female literacy rates, fertility rate, GDP growth rate, level of industrialization (industry value added), the inflation rate, level of globalization (exports of goods and services), unemployment rate, level of urbanization, GDP per capita (constant 2000 international $), and level of activity in the informal economy which is described by the range from 1 to 5. The educational variables used are the periods of compulsory, primary, and secondary education, levels of budgetary share for primary and secondary education (% of total expenditure), female and male net enrollment rates at primary and secondary education, public education expenditure (% of Govt. spending), public education expenditure (% of Govt. spending), level of privatization of primary and secondary education, teacher/pupil ratios at primary and secondary education, and level of urbanization. The political variables used in the analysis are ratification year of the ILO Worst Forms of Child Labor Convention No. 182 and the ILO Minimum Age Convention No. 138, the levels of control of corruption, the level of government effectiveness, the female and male literacy rates, the fertility rates, the percentage of women in the parliament, rule of law, voice accountability, the level of urbanization, legal origins. The socio-cultural variables used are ethnic fractionalization; the level of female labor force in the economy; the female and male literacy rates; the percentage of women in the parliament; religious fractionalization; the percentages of Catholic, Muslim and Protestant populations; the level of urbanization and regional variable.

Table 6 Final independent variables used for my analysis

Independent Variables	Economic	Political	Educational	Socio-Cultural
GDP per capita	✓			
GDP per capita growth rate	✓			
Inflation rate	✓			
Globalization (Exports of goods and services)	✓			
Foreign direct investment	✓			
Industrialization	✓			
Urbanization (Urban population)	✓	✓	✓	✓
Employment in agricultural (% of total employment)	✓			
Employment in industry (% of total employment)	✓			
Employment in service (% of total employment)	✓			
Level of activities in the informal economic sector	✓			
Female labor force (% of total employment)	✓			✓
Unemployment rate	✓			
Fertility rate	✓	✓		
Female literacy rate	✓	✓		✓
Male literacy rate	✓	✓		✓
Governance Voice and accountability		✓		
Governance Government Effectiveness		✓		
Governance Rule of Law		✓		
Governance Control of Corruption		✓		
Legal origin		✓		
% of women in the parliament		✓		✓
Ratification of Convention 138 (1973~)*		✓		
Ratification of Convention 182 (1999~)**		✓		
Duration of compulsory education			✓	
Duration of primary education			✓	
Duration of secondary education			✓	

Table 6: Continued

Independent Variables	Economic	Political	Educational	Socio-Cultural
National expenditure education (% of Govt. spending)			✓	
National expenditure on education (% of GDP)			✓	
Share for primary education (% of total exp)			✓	
Share for secondary education (% of total exp)			✓	
Teacher/pupil ratio, primary			✓	
Teacher/pupil ratio, secondary			✓	
Private enrollment share (%), primary			✓	
Private enrollment share (%), secondary			✓	
Religion % of Catholic population				✓
Religion % of Muslim population				✓
Religion % of Protestant population				✓
Religion (Fractionalization)				✓
Ethnicity (Fractionalization)				✓
Region				✓

* ILO Minimum Age Convention No.138
** ILO Worst Forms of Child Labor Convention No. 182

3.5.4 Sample statistic for the variables

Table 7 shows some of the sample statistics for all the variables used in this study. It shows the number of the observations, mean, standard deviation, minimum and maximum for each variable.

Table 7 Sample statistic for the variables

Variables	Number	Mean	StdDev	Min	Max
Rate of child labor	1484	18.3326	15.0236	0	59.2000
Female primary net enrollment rate	686	73.8408	22.9382	14.5200	100.0000
Male primary net enrollment rate	684	73.3098	19.3536	16.1600	100.0000
Female secondary net enrollment rate	417	41.0032	24.0464	3.0700	91.8300
Male secondary net enrollment rate	417	40.9442	21.2423	4.7100	90.8900
GDP per capita	1288	3618.1500	3609.52	458.6495	25721.6700
GDP per capita growth rate	1380	1.2660	7.2785	-52.0961	100.8313
Inflation rate	1270	74.4559	772.7204	-11.6861	23773.1300
Globalization (Exports of goods and services)	1352	30.8434	19.3600	0.4190	124.4130
Unemployment rate	486	10.4879	7.3459	0.3000	53.7000
Foreign direct investment	1329	2.6948	7.3016	-82.8921	145.2095
Industrialization	1306	28.2254	11.7237	7.8535	88.9223
Urbanization (Urban population)	1461	41.7140	20.3326	5.3300	92.5400
Employment in agricultural (% of total employment)	486	30.8290	23.5449	0.3000	94.2000
Employment in industry (% of total employment)	484	21.6436	8.2060	0.9000	47.5000
Employment in service (% of total employment)	484	46.0058	19.5367	3.8000	80.8000
Level of activities in the informal economic sector	--	--	--	--	--
Female labor force (% of total employment)	1458	38.7443	8.0941	10.6600	53.5000
Fertility rate	650	4.0710	1.7010	1.1800	7.8000
Female literacy rate	1037	62.6391	25.8861	5.1200	98.2500
Male literacy rate	1037	75.9067	18.1884	18.0100	99.1900
Governance - Voice and accountability	--	--	--	--	--
Governance Government Effectiveness	--	--	--	--	--
Governance Rule of Law	--	--	--	--	--
Governance Control of Corruption	--	--	--	--	--

Table 7: Continued.

Variables	Number	Mean	StdDev	Min	Max
Legal origin	--	--	--	--	--
% of women in the parliament	585	10.0986	6.2922	0	35.1000
Ratification of Convention 138 (1973~)*	--	--	--	--	--
Ratification of Convention 182 (1999~)**	--	--	--	--	--
Duration of compulsory education	--	--	--	--	--
Duration of primary education	--	--	--	--	--
Duration of secondary education	--	--	--	--	--
National expenditure education (% of Govt. spending)	229	15.7089	5.6277	2.7500	32.7800
National expenditure on education (% of GDP)	772	4.0010	1.9170	0.4300	13.0400
Share for primary education (% of total exp)	374	40.5131	11.7342	9.2800	90.9500
Share for secondary education (% of total exp)	501	27.5972	9.6881	1.9000	62.5200
Teacher/pupil ratio, primary	940	35.0476	13.2006	8.4400	80.4400
Teacher/pupil ratio, secondary	304	22.5708	8.3000	8.7800	63.0600
Private enrollment share (%), primary	698	12.9364	15.7007	0.0100	100.0000
Private enrollment share (%), secondary	523	19.4469	20.4528	0	96.0500
Religion - % of Catholic population	1428	32.3471	35.9962	0	96.6000
Religion - % of Muslim population	1428	27.1500	36.3639	0	99.9000
Religion - % of Protestant population	1414	9.3040	14.5795	0	64.2000
Religion (Fractionalization)	1288	38.9117	26.1155	0.3994	79.1143
Ethnicity (Fractionalization)	1302	56.8785	25.7778	0.9975	95.4458
Region	--	--	--	--	--

3.6 METHODOLOGICAL AND DATA LIMITATIONS OF THE STUDY

My analysis uses the rate of child labor from the World Development Indicator. As explained, the measure of child labor in the World Development Indicator, however, is the participation rate of children only aged 10 to 14. Therefore, as Cingo et al. (no date) state, this measure does not count working children who are younger than ten years old. It is important to note that the number of working children who were excluded is not negligible.

Socio-cultural variables are difficult to quantify. Therefore, it is almost impossible to accurately measure cultural influences on people's educational decision-making. Thus, it is important to remember that my analysis may have missed the critical variables, especially socio-cultural ones, which are strongly related to child labor and school enrollment.

Due to the characteristics of macro analysis, it is impossible to investigate some of the national characteristics that may be important implications of incidence of child labor and school enrollment rates. For example, in my analysis, it is impossible to know how each government uses its educational budget. Therefore, investigating the influence of those national characteristics to the incidence of child labor and school enrollment rates at the micro levels is suggested for the future research.

Due to many missing data, my result may be biased to some degree, although I collected the most comprehensive data that are available. Also, in order to run the regression analysis, I need to omit some of the independent variables from the listed independent variables. In addition, due to the incompletion of the data set, the time effect is not considered in my analysis.[21]

[21] Even though time effect is not considered, correlation among variables in one country is still considered in the analysis. Therefore, the analysis is not a simple cross-sectional regression analysis, but panel regression analysis.

Since I omitted some variables from my analysis in order to run the analysis, the effects from those omitted variables would not be investigated in my study. In addition, omitting some variables from equation may affect the results.

4.0 ANALYSIS AND RESULTS

In this chapter, I will describe some statistical information in order to understand the results of my study and discuss the main results of the empirical analysis addressing the research questions.

4.1 INFORMATION TO UNDERSTAND THE STATISTCIAL ANALYSIS

Some of the important statistical information is described in order to understand the empirical results in this study. The null hypothesis tested in my study is that there is no effect, meaning that the independent variable shows no effect on the dependent variable. The p value is the probability of obtaining the sample from the population(s) being tested when the null hypothesis is true, and it ranges from zero to 1. A p value close to zero, therefore, signifies that the null hypothesis is false, and usually that effect likely exists, while a p value close to one indicates that there is no effect of the independent variable on the dependent variable. Estimates are the "values calculated from a sample of data that are used to estimate population parameters[22]" (Kenkel, 1989, p.89). The absolute values of the each estimate show the effect of the independent variables on the dependent variables; the larger the value, the larger the impact. Positive estimates imply a positive relationship between an independent variable and a dependent variable; when the value of the independent variable increases, the value of the dependent

[22] Parameters are the "numbers that describe population characteristics (Kenkel, 1989, p.89)

variable also increases. On the contrary, negative estimates imply a negative relationship between the two variables. That is, when the value of the independent variable increases, the value of the dependent variable decreases. The level of significance indicates that probability value used in order to reject null hypothesis. For example, if the independent variable is significant at the 1 % level, meaning that the p value for this independent variable is less than 0.01, there is a 1 % possibility that the null hypothesis is rejected when it is actually true. In my study, the one, five, and ten percent levels of significance are tested for each independent variable. In addition to those three levels of significance, marginally significant variables are defined to have a p value between 0.1 and 0.15.

4.2 ARE THERE ANY RELATIONSHIPS BETWEEN SCHOOL ENROLLMENT AND THE RATES AND THE RATE OF CHILD LABOR?

To answer this question, I used the school enrollment rates (primary female net enrollment, primary male net enrollment, secondary female net enrollment, and secondary male net enrollment) as a dependent variable (Y) and the rate of child labor as an independent variable (X). Since this analysis is testing the simple correlation between the two variables, the rate of child labor and school enrollment rates can be interchangeable. Therefore, I chose the school enrollment rates as a dependent variable and the rate of child labor as in an independent variable because the number of the observations is larger than that in the opposite order. The summary of the analysis is reported in the Table 8.

According to this model, the rate of child labor show statistically significant effects with negative estimates for the school enrollment rates for both sexes at both levels of education at the

1 % level.[23] This implies that the school enrollment rates decrease when the rate of child labor increases. Within this model, the rate of child labor seems to have strongest effects on the secondary female net enrollment rate (-1.4828) and weakest effects on the male primary net enrollment rate (-0.9736). At both levels of education, it appears that the female enrollment rates are more vulnerable to the change in the rate of child labor than the male enrollment rate, because the estimates for the female enrollment rates are larger than the estimates for the male enrollment rates. In addition, it shows that changes in the rate of child labor have stronger effects on the secondary school enrollment rate for both sexes. This result supports the idea that schooling can be one of the effective ways of drawing children out from the labor market (Siddiqi, 1996) especially for girls and for students at the secondary education level.

Table 8 Relationship between the rate of child labor and the school enrollment rates

ID	Primary Female (n=686)		Primary Male (n=684)		Secondary Female (n=417)		Secondary Male (n=417)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
CL rate	-1.2830	<.0001*	-0.9736	<.0001*	-1.4828	<.0001*	-1.2334	<.0001*

Note: n is the number of the observation used.
CL implies child labor.
* significant at 1 % level

[23] However, the later analysis of the relationship between the rate of child labor and the educational variables shows that there is no significant effect of the primary school enrollment rate on the rate of child labor, while there still exists the high level of significance of the secondary school enrollment rate on the rate of child labor. This is discussed in the later section.

4.3 WHAT COUNTRY CHARACTERISTICS CAN EXPLAIN THE PREVALENCE OF CHILD LABOR?

In this subsection, the national characteristics that can explain the prevalence of child labor are discussed with regard to the economic, political, educational and socio-cultural variables. The analysis will discuss the effects of the selected independent variables on the rate of child labor.

4.3.1 What economic characteristics of a country can explain the prevalence of child labor?

To answer this question, I used the rate of child labor as a dependent variable (Y) and the economic variables as independent variables (X). Since the relationship between the percentages of employments in the service and agricultural sectors and between female and male literacy rates are strongly correlated with each other (more than 90 %), four different regression analyses needed to be run with different combinations for those variables in order to avoid collinearity. The summary of all the analyses is reported in the Table 9.

The employment rate in the industrial sector, level of female labor force in the economy, female and male literacy rates, fertility rate, and level of urbanization have all statistically significant effects on the rate of child labor at the 1 % level. The effects of the level of trade exports (the level of globalization) and GDP growth rate are sensitive to the changes in independent variables (the female and male literacy rates and employment rates in the agricultural and service sectors) and show significant effects on the rate of child labor in some models. The level of activity in the informal economy and level of industrialization are also sensitive to the changes in independent variables and show marginally significant effects on the rate of child labor in some models.

The employment rate in the industrial sector is statistically significant with negative estimates for the rate of child labor at the 1 % level in all four models, implying that larger employment in the industrial sector is associated with a decrease in the rate of child labor, although one variable, the industry value added as % of GDP that measures the level of industrialization does not show any significant effects on the rate of child labor. As Buchmann & Brakewood (2000) explain the higher level of industrialization provides employment opportunities to skilled and educated workers, it seems to become more and more difficult for uneducated and unskilled young children to find job opportunities when the level of industrialization becomes higher.

The percentage of female labor force in the economy has statistically significant effects with positive estimates on the rate of child labor at the 1 % level in all four models. This indicates that the rate of child labor increase when more women are in the labor force. This result may support Basu's (1999) finding about female employment outside home; when more women/mothers are employed outside their homes, their children need to substitute for mothers in the home by doing housework and taking care of younger siblings. It may also be analyzed as mothers take their children to their work when those children are very young and, eventually, they become child laborers. Although many economists believe that promoting female employment outside the home reduces the poverty level and eventually reduces child labor, my study does not support this mainstream idea.

Both the female and male literacy rates have statistically significant effects with negative estimates on the rate of child labor at the 1 % level in both two models. That is, the rate of child labor decreases if adults are more educated and literate. As Hussain & Mashus (2003) and Ray (no date) explain, literate adults may be more productive in the work place, have more

opportunities to find skilled employment with higher wages, and know much more about the importance of education to improve their lives. Literate adults seem to know more about the disadvantages of child labor drawing children out of work.

The fertility rate has statistically significant effects with positive estimates on the rate of child labor at the 1 % level in all four models, implying that the higher the fertility rate, the higher the rate of child labor. Compared to the absolute values of the estimates for other significant variables, the absolute values of the estimates for fertility rates are considerably large. This implies the changes in the fertility rates seem to have much more substantial effects on the rate of child labor than other independent variables. As Hazan & Berdugo (2002) point, my results may support that child labor is abundant and fertility rates are high in the early stage of economic development in less developed countries. Most of the countries selected for my study are fallen in this stage of development. The results also support the idea that parents choose to have more children in order to have more sources of income and, consequently, invest little in each child's education (Chakraborty, 2003).

The variable, the exports of goods and services (% of GDP), which is used as a measurement of economic globalization, has statistically significant effects with negative estimates on the rate of child labor at the 1 % level in two of the four models and at the 5 % level in one of the four models. Based on the results obtained, it appears that when a country exports more goods and services, its rate of child labor decreases. Although globalization is often discussed as a disadvantageous factor for reducing child labor (Neumayer, 2004; Hitchcock, 2002) since many of those exporting goods and services from less-developed countries are labor-intensive products in which child laborers can take part, my study supports the idea that promoting demands for export-oriented products helps reduce the rate of child labor.

The level of urbanization also has statistically significant effects with negative estimates on the rate of child labor at the 1 % level in all four models, implying that if a country is more urbanized, there are less child laborers, or that more child labor can be found in rural areas. My study rejects the argument that a higher unemployment may increases child labor and shows the opposite result from Hiraoka's empirical study in India that supports the Harris-Todaro model (Hiraoka, 1997). Instead, the results support the assumption that urbanization along with industrialization and globalization improves nations' well-being and reduces the rate of child labor as Federman & Levine argue (no date). The higher level of urbanization seems to create more job opportunities for skilled and educated adults, which reduces job opportunities for child laborers.

The GDP growth rate shows statistically significant effects with positive estimates on the rate of child labor at the 10 % level in one of the four models and at the marginal significant level in the two of the four models. Interestingly, estimates for all four models are positive, indicating that the higher the GDP growth rate, the higher the rate of child labor. This implies that the prospective of economic development may push children to work and increase the rate of child labor as a result. This seems to support the Hindman's argument that child labor increases on the initial phases of industrialization (2002) due to an urgent feeling of earn as much as possible when possible as described earlier.

The level of activity in the informal economy shows marginally significant effects with negative estimates on the rate of child labor in two of the four models. It is usually assumed that the higher the level of activity in the informal economy the higher the rate of child labor because most child laborers, especially in urban areas, can be found in the informal economy (Buchmann & Brakewood, 2000; Swaminathan, 1998). However, my result seems to reject this assumption.

The higher level of activity in the informal economy appears to be associated with a decrease in the rate of child labor. The majority of the people who work in the informal economy are not children but adults. Restricting the informal economy may make many people jobless and make their life worse off. Although the high level of activity in the informal economy may promote child labor to some degree, contribution of the informal economy for those poor people to surviving and not to making their children to work seems to be much bigger than the possibility for poor children to work in the informal economy based on the result obtained. This could be the reason why the higher level of activity in the informal economy is associated with the lower rate of child labor. Or, this phenomenon could also be analyzed as that child laborers who work in the informal economy are difficult to be observed and counted in the statistic data. The higher level of activity in the informal sector may take children from the formal economy where it is difficult for them to find employments and put them in the informal sector. Therefore, the higher the level of activity in the informal economy the greater the number of child laborers in the informal economy, and consequently, the lesser the number of child laborers who work at observable worksites.

Interestingly, GDP per capita, the inflation rate and unemployment rate are not significant variables for the rate of child labor in the considered models. Among the countries with some degrees of child labor, GDP per capita appears not to be an important variable to explain the incident of child labor. It seems national wealth in less-developed countries does not have significant effects on the rate of child labor. Since it is a common assumption that there is a relation between poverty and the incidence of child labor considering the fact that most child labor has been found in less-developed poorer countries, GDP per capita may not be a sufficient indicator to measure the prevailed poverty in a country. For example, in Indonesia, Chinese

controls over 90 % of the national economy. In this kind of country, GDP per capita may be high with high inequality in terms of the GDP distribution. Thus, the level of equality in terms of the GDP distribution (GINI index) may be more important than the actual amount of GDP per capita, although it is impossible to test the effects of GINI index in my study as explained. In addition, the percentage of employment in the agricultural sector does not show significant effects on the rate of child labor. Many children in rural areas are engaged in agriculture especially in the harvest time of the year, but children who are considered to be working in order to assist their parents may not be counted in the labor force.

Table 9 Economic variables for the rate of child labor

Independnet Variable	CL w/ EmpAgr & FemLiteracy (n=192)		CL w/ EmpAgr & MalLiteracy (n=178)		CL w/ EmpSer & FemLiteracy (n=199)		CL w/ EmpSer & MalLiteracy (n=192)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
EmpAgr			0.002391	0.9197	NA	NA	NA	NA
EmpInd	-0.1090	0.0001*	-0.1400	0.0007*	-0.1146	<.0001*	-0.1155	0.0001*
EmpSer	NA	NA	NA	NA			-0.01112	0.6245
InfEcon	-0.08766	0.1199	-0.07367	0.2062	-0.08591	0.1053	-0.08306	0.1599
FDI	0.02738	0.5286	0.05187	0.2535			0.02843	0.5357
FemLabor	0.3691	<.0001*	0.3299	<.0001*	0.3367	<.0001*	0.3345	<.0001*
FemLiteracy	-0.1782	<.0001*	NA	NA	-0.1844	<.0001*	NA	NA
MalLiteracy	NA	NA	-0.1875	<.0001*	NA	NA	-0.1937	<.0001*
Fertility	2.7208	<.0001*	2.7886	<.0001*	2.2991	<.0001*	2.7395	<.0001*
GDP								
GDP Growth	0.02506	0.1099	0.02879	0.0878*	0.01643	0.2808	0.02467	0.1407
IndustrialVar	0.02548	0.2267	0.03435	0.1148	0.01614	0.4381	0.02871	0.1988
Inflation								
TradeExpo	-0.02631	0.0256**	-0.04619	0.0004*	-0.01267	0.2028	-0.03347	0.0066*
Unemploy								
Urbanization	-0.2197	<.0001*	-0.2861	<.0001*	-0.2462	<.0001*	-0.2500	<.0001*

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level,
** significant at 5 % level,
*** significant at 10 % level

4.3.2 What political characteristics of a country can explain the prevalence of child labor?

To answer this question, I used the rate of child labor as a dependent variable (Y) and the political variables as independent variables (X). There are strong correlations between the level of government effectiveness and level of voice accountability and between the female and male literacy rates. Therefore, four different regression models were run in order to investigate the effect of each independent variable on the rate of child labor. Table 10 summarizes the results.

Only the fertility rate and level of urbanization show significant effects on the rate of child labor at the 1 % level in all four models. The level of government effectiveness, legal origin, and level of rule of law are sensitive to the changes in some independent variables (the level of government effectiveness, level of voice accountability, the female and male literacy rates); the level of government effectiveness shows significant effects on the rate of child labor at the 10 % level in one of the two models, legal origin shows significant effects on the rate of child labor at the 10 % level in two of the four models, and the level of rule of law is significant for the rate of child labor at the 5 % level in one of the four models. The percentage of women in the parliament is also sensitive to model selection and shows marginally significant effects on the rate of child labor in two of the four models.

Significant effects of the fertility rate with positive estimates on the rate of child labor in all four models could imply, from the political point of view, that if governments strongly commit to inducing parents to have fewer children, child labor could dramatically decrease. The absolute values of the estimates are considerably large just like in the economic analysis. Therefore, reducing fertility rates appears to reduce the rate of child labor substantially. Although studying the effects of the level of public health expenditure as of % of GDP could

have been a confirming component of this assumption, it is impossible to investigate the effects of public health expenditure in my study due to the limited amount of available data. However, this result, at least, could suggest that governments' commitment to reducing the fertility rate would help reduce the rate of child labor.[24]

The level of urbanization has significant effects with negative estimates on the rate of child labor at the 1 % level in all models. My result appears to support the assumption that political institutions have more access to people in urban areas and those people are more aware of their political rights, including their children's rights to education. This access and awareness may reduce the rate of child labor.

Significant effects of the level of government effectiveness with negative estimates on the rate of child labor, although significant effects are shown in only one of the four models at the 10 % level, may indicate that a national government could reduce the rate of child labor by functioning effectively and efficiently and raising its quality. Considering the definition of the variable, multidimensional improvement of a governmental function, such as raising the quality of civil servants and organizing the bureaucratic procedures, would affect the rate of child labor. This seems to support Neumayer & de Soysa's idea that many governments do not have a capacity of effectively enforcing any social policies including the ones related to child labor even if they have established seemingly effective laws and policies (2004).

Legal origin shows significant effects on the rate of child labor at the 10% level in two of the four models. Based on my results, countries with laws originated in the French law have most child laborers, while countries with socialist laws have least child laborers. My result supports findings from La Porta et. al. that laws originated in the French civil laws are the least

[24] This policy is sometimes discussed as ethically and socially problematic.

protective and the legal systems originated in the French law have the lowest enforceability (1998). As assumed in the literature review, those characteristics of French-originated laws and systems seem to have negative impacts on child labor.

The percentage of women in the parliament shows marginally significant effects with positive estimates on the rate of child labor in two of the four models, although the significance level is very subtle. This rejects the findings from Mookerjee and Orlandi that a larger number of women in the parliament is related to the lower rate of child labor (2004).

The variable "rule of law" shows significant effects with negative estimates on the rate of child labor at the 5 % level in one of the four models. This result implies that child labor is effectively reduced by rules and laws designed to reduce child labor in countries where there are significant societal pressures that assure the enforcement of those laws. Based on the results obtained, not only the quality of a government, but also the quality of the society is an important factor for rules, laws, and policies to be enforced effectively and efficiently, in order to reduce child labor.

Ratifying the ILO Minimum Age Convention No. 138 and ILO Worst Forms of Child Labor Convention No. 182 does not significantly affect the rate of child labor, based on my results. This may support some critiques to those conventions and rules of United Nations that international conventions and declarations often are not practical but ideal and remain as pieces of paper with good will (Lieten & While, 2001). Also, the year of ratification of these conventions is not the year when the effects of the policies derived from these conventions can be seen. Thus, especially the effects of Convention No. 182, which was first established in 1999, may become significant in the future.

Table 10 Political variables and the rate of child labor

ID	CL w/o GovEff & MalLiteracy (n=107)		CL w/o GovEff & FemLiteracy (n=68)		CL w/o VoiceAcco & MalLiteracy (n=107)		CL w/o VoiceAcco & FemLiteracy (n=68)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
Conv.182								
Conv. 138	0.05475	0.8827						
Corruption								
GovEff	NA	NA	NA	NA	-0.3289	0.5544	-1.4410	0.0710***
LegalOr		0.0501***		0.4091		0.0521***		0.3061
FemLiteracy			NA	NA			NA	NA
MalLiteracy	NA	NA	-0.06136	0.3853	NA	NA	-0.07648	0.2861
Fertility	4.8469	<.0001*	3.2054	0.0008*	4.1338	<.0001*	3.0178	0.0012*
NWP	0.09131	0.1236	0.03224	0.5543	0.09480	0.1111	0.07049	0.2098
RuleLaw	-0.6960	0.3668	-1.9352	0.0379**	-0.4958	0.5544	-0.7217	0.4592
VoiceAcco					NA	NA	NA	NA
Urbanization	-0.3330	<.0001*	-0.3523	0.0004*	-0.3293	<.0001*	-0.3473	0.0005*
English Law	-4.1435				-4.0466			
Socialist Law	-6.6511				-6.7184			
French Law	0				0			

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.3.3 What educational characteristics of a country can explain the prevalence of child labor? Does the level of government expenditure on education affect the rate of child labor?

To answer this question, I used the rate of child labor as a dependent variable (Y) and the educational variables as independent variables (X). There are strong correlations between the female and male primary net enrollment rates and between the female and male secondary net enrollment rates. Thus, four different regression models were created and run. The summary of all the analyses is reported in the Table 11.

The secondary net enrollment rates for female and male and level of urbanization are significant variables for the rate of child labor in all four models. Budgetary share for secondary education shows marginal significance for the rate of child labor in one of the four models.

The secondary net enrollment rates for female and male have significant effects with negative estimates on the rate of child labor at the 1 % level in all four models, while the primary female and male net enrollment rates do not show any significant effects on the rate of child labor.[25] This implies that the higher the secondary enrollment rate, the lower the rate of child labor, while the changes in the primary enrollment rate do not affect the rate of child labor. Insignificance of effects of the primary enrollment rate may imply that primary school students combine schooling and work because it is difficult to assume no primary school students work in those less-developed countries, while secondary school students choose either schooling or work. This could be reasonable considering that older children may be able to work as much as adults

[25] In one of the previous subsections, the regression model using only the school enrollment rate as a dependent variable and the rate of child labor as a independent variable shows both the female and male enrollment rates at the primary and secondary education levels are significant on the rate of child labor, but when adding other educational variables as independent variables, the enrollment rate at the primary education level becomes insignificant.

do while younger children could do less than adults due to their physical incapability. Therefore, promoting secondary education seems to be a more effective policy intervention for reducing child labor.

The level of urbanization shows significant effects with negative estimates on the rate of child labor at the 1 % level in all four models, implying that less child labor can be found in urban areas. Schools in urban areas are assumed to provide more attractive education in terms of both quality and relevance than those in rural areas (Dutta, 2002), and/or more access to formal education is available in urban areas than in rural areas. These factors seem to be help children stay our of the labor force. In addition, the subject matter tends to be less relevant to rural students' lifestyle because many children inherit their family's profession. Therefore, children in rural areas may need to work instead of or in addition to attending school.

Neither the levels of public education expenditure (% of Govt. spending) nor public education expenditure (% of Govt. spending) shows any significant effect on the rate of child labor. This result indicates that increasing educational budgets does not contribute to decreasing the rate of child labor.

Table 11 Educational variables with the rate of child labor

ID	CL w/ NetPriFem & NetSecMal (n=69)		CL w/ NetPriFem & NetSecFem (n=85)		CLw/ NetPriMal and NetSecMal (n=85)		CL w/ NetPriMal & NetSecFem (n=77)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
CompEdPeri	-0.2040	0.8186			-0.03592	0.9684	0.5856	0.5091
PriEdPeri	-1.8596	0.3308	-1.5235	0.4113	-2.6339	0.1875	-1.3337	0.4932
SecEdPeri								
EduSharePri								
EduShareSec	-0.03086	0.1953	-0.02489	0.1441	-0.01407	0.3941	-0.01629	0.3221
NetPriFem	-0.02342	0.4761			NA	NA	NA	NA
NetPriMal	NA	NA	NA	NA				
NetSecFem	NA	NA	-0.1024	0001*	NA	NA	-0.1118	<.0001*
NetSecMal	-0.09532	0.0031*	NA	NA	-0.07617	0.0002*	NA	NA
PrivatePri	-0.06683	0.3326	-0.06596	0.2405	-0.06965	0.2379	-0.05774	0.3308
PriateSec	0.02073	0.3356	0.01433	0.4077			0.01424	0.3894
PubExGDP	0.003460	0.9837	0.09187	0.4064	0.1412	0.1535	0.08615	0.4905
PubExGovt								
TeaPupPri	0.05479	0.3489			0.03929	0.2989		
TeaPupSec	0.001711	0.9698	-0.02398	0.4459	-0.03408	0.2205	-0.01681	0.5804
Urbanization	-0.3529	0.0002*	-0.3175	<.0001*	-0.4222	<.0001*	-0.3114	<.0001*

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level

4.3.4 What socio-cultural characteristics of a country can explain the prevalence of child labor?

To answer this question, I used the rate of child labor as a dependent variable (Y) and the socio-cultural variables as independent variables (X). Two different regression models were run, due to the high correlation between the female and male literacy rates. The summary of all the analyses is reported in the Table 12.

Regional variable, the female and male literacy rates, and level of urbanization are statistically significant variables for the rate of child labor at 1 % level for both analyses. The percentage of female labor force in the economy and percentage of the Protestant population are sensitive to the changes in the female and male literacy rates and show significant effects on the rate of child labor in one of the two models.

Regional variable is a significant variable for the rate of child labor, at the 1 % level in both models. The table shows that African region has the highest rate of child labor, and Middle Eastern countries have the lowest rates. Although Europe, by common sense, seems to have the lowest rate of child labor, the small sample size from European countries may affect the estimates for Europe because I only chose the countries where child labor was observed between 1990 and 2003, which implies that most of the European countries with no child labor are not selected for the analysis. Moreover, my results support the UNICEF's statement that the perception that children are supposed to work and support families' survival may be prevailed most in African countries (1997). This could also support some regionally-shared cultural

meanings that attach to childhood may affect the rate of child labor as Basu (1999) and White (2002) suggest.[26]

Both the female and male literacy rates have negative effects on the rate of child labor at the 1 % level. It appears that if the adult literacy rate increases the rate of child labor decreases. This result supports the idea, from the socio-cultural point of view, that more educated adults (parents) appreciate the value of education. In addition, educating adults may decrease the degree of negative cultural influence on child labor, such as perception of childhood and child work (Basu, 1999; Grootaert & Patrinos, 1999; Lieten, 2001; Collins, 1983; Stadum, 1995) even if it exists in a society.

The level of urbanization also has significant effects on the rate of child labor with negative estimates at 1 % level in both models, indicating that more child labor can be found in rural areas. From the socio-cultural view point, it seems to be explained that urbanization of a society tends to seize cultural influence on people. People in urban areas tend to have more modern and more western ideas, perceptions and life style, which tend to value formal education and devalue children's work.

Three variables that may show the influence of cultural openness toward women are considered. The results are contradicted with each other. The percentage of female labor force in the economy shows significance with positive estimates for the rate of child labor at the 5 % level in one model and marginal significance in the other, which implies that when more female are in labor market, more child laborers are found. The female literacy rate is a significant variable with negative estimates for the rate of child labor at 1 % level in both models, indicating

[26] Even though many African countries are considerably poor as a nation, considering that GDP per capita is not a significant variable and many African countries used to be French colonies, the reasons why African region has the highest the rate of child labor may be not only because of the regionally-shared meanings attached to childhood as discussed, but also because poverty and inequality in African countries may be higher than in other regions and because the laws in many African countries are French-originated ones, which reduces the rate of child labor.

that if females are more educated and literate, the rate of child labor lowers. The percentage of women in the parliament is a non-significant variable in the first regression analysis and omitted in the second analysis. Those three variables are used in order to illustrate cultural openness toward women in the economic, educational, and political spheres. Based on my analysis, cultural openness toward women does not seem to have a strong influence on the rate of child labor.

The percentage of the Protestant population in a country shows significant effects with negative estimates for the rate of child labor at the 10 % level in one model, while Muslim and Catholic variables are non-significant. That is, the higher percentage of the Protestant population in a country appears to be associated with the lower rate of child labor. This may indicate that some elements of Protestant belief discourage child labor. In addition, as discussed in the previous chapter, La Porta et. al. (1998) find that religious belief is related to government performance and Muslims and Catholics exhibit inferior performance. Although none of these two religious groups shows a negative influence on the rate of child labor, Protestants may exhibit superior government performance, which may help reducing child labor in the political sphere as well as in the cultural sphere, based on my analysis.

Table 12 Socio-cultural variables and the rate of child labor

ID	CL w/ MalLiteracy (n=951)		CL w/o FemLiteracy (n=951)	
	Estimate	P value	Estimate	P value
EthFra	0.04291	0.3641	0.04890	0.2944
FemLabor	0.1088	0.0115**	0.06309	0.1437
Region	.	0.0010*	.	0.0008*
FemLiteracy	-0.2095	< .0001*	NA	NA
MalLiteracy	NA	NA	-0.2518	<.0001*
WP				
RelCath				
RelMus				
RelFra				
RelPro	-0.1015	0.1687	-0.1271	0.0812***
Urban	-0.2806	< .0001*	-0.3192	<.0001*
1 (Africa)	10.0658	0.0589	9.8105	0.0618
2 (Asia)	-0.4382	0.9347	-1.2755	0.8088
3 (Latin)	0.9921	0.8383	0.1651	0.9725
4 (Middle East)	-4.6148	0.4055	-2.7883	0.6095
5 (Europe)	0	.	0	.

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.4 WHAT COUNTRY CHARACTERISTICS CAN EXPLAIN THE LOW PRIMARY SCHOOL ENROLLMENT RATES?

The national characteristics that can explain low primary school enrollment are discussed from the economic, political, educational and socio-cultural points of view in this subsection. The analysis will discuss the effects of the selected independent variables on the primary school enrollment rate.

4.4.1 What economic characteristics of a country can explain the low primary school enrollment rates?

To answer this question, I used the female and male primary net enrollment rates as dependent variables (Y) and the economic variables as independent variables (X). Since the relationships between the percentages of employments in the service and agricultural sectors and between the female and male literacy rates are strongly correlated with each other (more than 90 %), four different regression analyses for each female and male enrollment rates were run. The summary of all the analyses is reported in the Table 13 for the female enrollment rates and Table 14 for the male enrollment rates.

The relationship between the economic variables and the female primary enrollment rate are as follows. The employment rate in the industrial sector, percentage of female labor force in the economy, female and male literacy rates and fertility rate have all statistically significant effects on the female primary net enrollment rate at 1 % level in all models. The effects of the level of foreign direct investment, level of industrialization, level of globalization (trade export), and level of urbanization are sensitive to the changes in independent variables (the literacy rates

and employment rates in the agricultural and service sectors) and show marginally significant effects on the female primary net enrollment rate in some models.

The relationship between the economic variables and the male primary net enrollment rate shows some difference from the one between the economic variables and the female primary net enrollment rate. The percentage of female labor force in the economy and fertility rate have significant effects on the male primary net enrollment rate at 1 % level in all four models, and the employment rate in the industrial sector has significant effects rate at 5 % level in all four models. The effects of the level of foreign direct investment and female and male literacy rates are sensitive to the changes in some independent variables (the literacy rates and employment rates in the agricultural and service sectors) and show significant or marginally significant effects on the primary male enrollment rate in some models.

The employment rate in the industrial sector has significant effects with negative estimates on the female primary net enrollment rate at the 1 % level in all models, and on the male primary net enrollment rate at the 5 % level in all models, implying that the higher employment rate in the industrial sector is associated with the lower primary net enrollment rate with stronger significant effects on the female primary net enrollment rate. On the other hand, the level of industrialization (industry value added as % of GDP) appears to be marginally significant with positive estimates for the female primary net enrollment rate in two of the four models and not significant for the male primary net enrollment rate, implying that industrialization helps increase the female primary enrollment rate, but the significance level is very subtle. Much research suggests that growth in industrial employment is positively related to the higher school enrollment rate (Federman and Levine, no date) and that industrialization increases the demand for education by providing more employment opportunities for educated

adults (Buchmann & Brakewood, 2000). This could be a sign of negative externality. As the industrial sector develops, employment opportunities may attract children. However, many of these jobs in the industrial sector require an educated skilled labor force. Therefore, as the results show, those children who drop out schools to look for a job reduce school enrollment rates, but many of them may not successfully find a job.

The percentage of female labor force in the economy has significant effects with negative estimates on the female and male primary net enrollment rates at the 1 % level in all four models. The higher rate of female labor force in the economy appears to relate to the lower school enrollment rate. My results reject the common assumption that female participation in the economic activity facilitates children's schooling because families become better off with additional income. Considering the opposite effects of the level of female labor force in the economy on the secondary enrollment rate which will be discussed later, mothers may take their younger children to work without leaving them at home, some children, especially daughters, may substitute for mother's role at home without attending schools.

The fertility rate has significant effects with negative estimates on both female and male primary net enrollment rates at the 1 % level in all models, implying that when the fertility rate is higher, the primary school enrollment rate is lower. This result supports one of the common assumptions that poor parents prefer having more children in order to have more income sources. Those parents pay less attention to raising quality of children, and consequently, fewer children are sent to formal educational settings, which decreases school enrollment rates (Chakraborty & Das, 2003).

Both female and male literacy rates are significant with positive estimates on the female primary net enrollment rate at the 1 % level in both models, while, for the primary male

enrollment rate, these variables are sensitive to the changes in some independent variables (the employment rates in the agricultural and service sectors and female and male literacy rates) and show significant effects at the 5% level in some models and marginally significant effects in one model. This implies that the adult literacy rate has more significant effects on the female primary net enrollment rate than on the male primary net enrollment rate. This result seems to support the ideas that more educated adults are more productive in the workplace so that they can earn higher income (Hussain & Mashus, 2003), know the benefit of acquiring education, and make better and more appropriate educational decisions for their children (Ray, no date). Based on the results obtained, educating adults makes a more significant difference for the female enrollment rate. This could imply that education for boys is considered important more commonly throughout all the socio-economic classes regardless of parents' illiterateness than education for girls in general.

The level of foreign direct investment shows marginally significant effects with positive estimates on the female primary net enrollment rate in two of the four models and significant effects with positive estimates on the male primary net enrollment rate at the 10 % level in one of the four models and marginally significant effects in one of the four models. The effects of this variable, however, are not as significant as other variables such as the fertility rate and the level of female labor force in the economy. Based on my analysis, the higher level of foreign direct investment is associated with the higher primary school enrollment rate to some degree. Although the level foreign direct investment is not a significant variable for the rate of child labor in my study, it seems to facilitate the primary school enrollment rate. This seems to support Gaston & Nelson's argument (2002) that inflow of foreign direct investment increases

human capital by demanding skilled workers who can work in corporations, which eventually promote children's education.

The level of urbanization does not seem to be very influential for primary school enrollment rates. It shows only marginally significant effects with positive estimates on the female primary net enrollment rate in some models, while it does not show any significant effects on the male primary net enrollment rate. That is, living in rural areas is not disadvantageous for children from the economic point of view. This may imply primary education is well established regardless of their level of urbanization throughout the country even in many less-developed countries.

Table 13 Economic variables and the primary female enrollment rates

ID	Prim Female w/o EmpSer & MalLiteracy (n=84)		Prim Female w/o EmpSer & FemLiteracy (n=84)		Prim Female w/o EmpAgr & MalLiteracy (n=84)		Prim Female w/o EmpAgr & FemLiteracy (n=84)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
EmpAgr					NA	NA	NA	NA
EmpInd	-0.5601	0.0032*	-0.6033	0.0020*	-0.5792	0.0027*	-0.6243	0.0016*
EmpSer	NA	NA	NA	NA				
InfEcon	0.3825	0.2682	0.3487	0.3184	0.4017	0.2503	0.3675	0.2985
FDI	0.6277	0.1282	0.5367	0.1953	0.6142	0.1400	0.5213	0.2121
FemLabor	-0.9437	0.0002*	-0.8668	0.0007*	-0.9753	0.0002*	-0.9004	0.0006*
FemLiteracy	0.2178	0.0007*	NA	NA	0.2167	0.0007*	NA	NA
MalLiteracy	NA	NA	0.2594	0.0034*	NA	NA	0.2585	0.0033*
Fertility	-5.2050	0.0009*	-5.3903	0.0009*	-5.4186	0.0008*	-5.6135	0.0008*
GDP	0.000369	0.2488	0.000351	0.2939	0.000395	0.2173	0.000379	0.2570
GDP Growth					-0.07136	0.4925	-0.07351	0.4824
IndustrialVar	0.1552	0.1311	0.1356	0.1940	0.1746	0.1017	0.1555	0.1509
Inflation								
TradeExpo	0.09409	0.1628	0.1006	0.1498	0.1023	0.1342	0.1095	0.1221
Unemploy	-0.2994	0.1883	-0.3200	0.1735	-0.2965	0.1922	-0.3157	0.1790
Urbanization	0.1237	0.1542	0.1479	0.1085	0.1105	0.2084	0.1340	0.1498

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

Table 14 Economic variables and the primary male enrollment rates

ID	Prim Male w/o EmpSer & MalLiteracy (n=112)		Prim Male w/o EmpSer & FemLiteacy (n=112)		Prim Male w/o EmpAgr & MalLiteracy (n=83)		Prim Male w/o EmpAgr & FemLiteracy (n=83)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
EmpAgr					NA	NA	NA	NA
EmpInd	-0.3706	0.0290**	-0.3795	0.0248**	-0.4833	0.0158**	-0.5065	0.0109**
EmpSer	NA	NA	NA	NA				
InfEcon	0.3824	0.2638	0.3594	0.2925	0.4638	0.2096	0.4396	0.2341
FDI	0.4117	0.3803	0.4021	0.3892	0.7650	0.0948***	0.7339	0.1069
FemLabor	-0.8225	0.0003*	-0.8214	0.0002*	-0.8120	0.0015*	-0.7831	0.0016*
FemLiteracy	0.07255	0.2925	NA	NA	0.1339	0.0321**	NA	NA
MalLiteracy	NA	NA	0.1487	0.1212	NA	NA	0.1862	0.0247**
Fertility	-6.2439	<.0001*	-6.2012	<.0001*	-4.8391	0.0031*	-4.8310	0.0029*
GDP	0.000189	0.6419	0.000172	0.6693	0.000422	0.1910	0.000438	0.1697
GDP Growth								
IndustrialVar	-0.01178	0.9146	0.1783	0.8700	0.1159	0.2828	0.1113	0.3004
Inflation								
TradeExpo								
Unemploy					-0.1554	0.5093	-0.1540	0.5097
Urbanization								

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.4.2 What political characteristics of a country can explain the low primary school enrollment rates?

To answer this question, I used the female and male primary net enrollment rates as dependent variables (Y) and the political variables as independent variables (X). There are strong correlations between the level of government effectiveness and level of voice accountability and between the female and male literacy rates. Therefore, four different regression models were run for the primary female and male enrollment rates in order to investigate the effect of each independent variable. Table 15 summarizes the result for the female primary net enrollment rate and Table 16 for the male primary net enrollment rate.

The relationship between the political variables and female primary net enrollment rate are described as follows. The fertility rate shows significant effects with negative estimates on the female primary net enrollment rate at the 1 % level in all four models. The percentage of women in the parliament shows sensitivity to the changes in some independent variables (the level of government effectiveness, level of voice accountability, and female and male literacy rates), but has significant effects with positive estimates on the female primary net enrollment rate at the 10 % level in three of the four models. The male literacy rate is also sensitive to the changes in some independent variables and shows significant effects on the female primary net enrollment rate at the 10 % level in one of the two models. The level of voice accountability shows marginal significance on the female primary net enrollment rate in one of the two models.

The male primary net enrollment rate has only one significant political variable. The fertility rate is the only one significant variable with negative estimates on the male primary net

enrollment rate at the 1 % level in all four models. There is no other political variable that shows significant effects on the male primary net enrollment rate.

Countries with the higher fertility rate have the lower female and male primary net enrollment rates according to my results. From the political perspective, just like the relationship between the rate of child labor and the fertility rate, this may mean that government commitment to reducing the fertility rate could increase the primary school enrollment rate.

Countries with the higher percentage of women in the parliament seem to have the higher female primary net enrollment rate based on the results obtained. However, it does not show any significant relationship with the male primary net enrollment rate. As Mookerjee and Orlamdi (2004) point out, women tend to care about social issues around children. The reason for non-significant effects on the male primary net enrollment rate is not clear, but it could be that the male primary net enrollment rate may be already considered to have been adequately achieved in many countries and deficiency is in the female enrollment rate.

Interestingly, the male literacy rate seems to be an important variable to explain the female primary net enrollment rate. The male literacy rate shows significant effects with a positive estimate on the female primary net enrollment rate at the 10 % level in one of the two models and shows marginally significant effects with a positive estimate in the other, while the female literacy rate does not show any significant effects on the female primary net enrollment rate. From the political perspective about the relationship between the female primary net enrollment rate and male literacy rate, fathers' political commitment and awareness and their civic participation seem to have impacts on the female primary net enrollment rate. The importance of the adult literacy level to reduce child labor and increase school enrollment is sometimes discussed from the political point of view (see Dee, 2003). Moreover, negative and

positive political influences of the female (mothers') literacy level are often discussed (see Basu, 1997 and LeVine, 1987). However, the influence of male literacy alone is often ignored in the discussion. Therefore, this is one of the areas that need further investigation.

International conventions and almost all the governance variables except for one (the level of voice accountability) that shows marginal significance in one of the two models do not show any significant effects on either female or male primary net enrollment rates. In addition, like the relationship between the economic variables and the primary enrollment rate, the male primary net enrollment rate seems to be more stable than the female primary net enrollment rate.

Table 15 Political variables and the primary female enrollment rates

ID	Prim Female w/o GovEff & MalLiteracy (n=82)		Prim Female w/o GovEff & FemLiteracy (n=55)		Prim Female w/o VoiceAcco & MalLiteracy (n=55)		Prim Female w/o VoiceAcco & FemLiteracy (n=55)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
Conv.182								
Conv. 138	0.4292	0.6646	2.6902	0.4244				
Corruption								
GovEff	NA	NA	NA	NA	-2.8577	0.2272	-2.2226	0.3348
LegalOr								
FemLiteracy			NA	NA	0.09325	0.2804	NA	NA
MalLiteracy	NA	NA	0.1927	0.1192	NA	NA	0.2172	0.0879***
Fertility	-11.1095	<.0001*	-10.8639	<.0001*	-10.7667	<.0001*	-10.2121	<.0001*
NWP	0.2602	0.1818	0.4306	0.0722***	0.4288	0.0791***	0.4154	0.0809***
RuleLaw								
VoiceAcco	-1.4383	0.4397	-3.6834	0.1339	NA	NA	NA	NA
Urbanization								

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

Table 16 Political variables and the primary male enrollment rates

ID	Prim Male w/o GovEff & MalLiteracy (n=100)		Prim Male w/o GovEff & FemLiteracy (n=100)		Prim Male w/o VoiceAcco & MalLiteracy (n=301)		Prim Male w/o VoiceAcco & FemLiteracy (n=301)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
Conv.182								
Conv. 138	-0.4046	0.6514						
Corruption								
GovEff	NA	NA	NA	NA				
LegalOr								
FemLiteracy			NA	NA			NA	NA
MalLiteracy	NA	NA			NA	NA		
Fertility	-8.5246	<.0001*	-8.5704	<.0001*	-7.0957	<.0001*	-7.0957	<.0001*
NWP								
RuleLaw								
VoiceAcco	-1.2070	0.4543	-1.3715	0.3804	NA	NA	NA	NA
Urbanization								

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.4.3 What educational characteristics of a country can explain the low primary school enrollment rates? Does the level of government expenditure on education affect the primary school enrollment rates?

To answer this question, I used the female and male primary net enrollment rates as dependent variables (Y) and the educational variables as independent variables (X). There are strong correlations between the female and male secondary net enrollment rates. Thus, two different regression models were created for each female and male primary net enrollment rate. The summary of all the analyses is reported in the Table 17.

For the female primary net enrollment rate, male primary net enrollment rate, and female secondary net enrollment rate the level of privatization of secondary education are significant at the 1 % level in both models; the duration of secondary education is significant at the 5 % level in both models, and the level of privatization of primary education and level of public expenditure on education as a % of GDP are significant at the 10 % level in both models. In addition, the teacher/pupil ratios, both at the primary and secondary education levels, duration of primary education, and level of share for primary education as a % of total educational expenditure are sensitive to the changes in some independent variables (the female and male secondary net enrollment rates) and show either significant or marginally significant effects on the female primary net enrollment rate.

For the male primary net enrollment rate, the female primary net enrollment rate and level of privatization of secondary education show significant effects at the 1 % level in both models, and the level of share for primary education as % of total educational expenditure and level of public expenditure on education as % of GDP are significant at the 5 % level in both

models. Additionally, the duration of primary and that of secondary education, the level of privatization of primary education, teacher/pupil ratio at the primary education level, and level of public expenditure on education as % of government spending are sensitive to the changes in some independent variables (the net secondary female and male enrollment rates) and show either significant or marginally significant effects on the male primary net enrollment rate.

The primary net enrollment rate of the opposite sex is always significant with positive estimates at the 1 % level. This means that the female and male net enrollment rates increase together when overall school enrollment rate increases.

The effects of secondary education privatization are interesting. First, there are highly significant effects of privatization of secondary education on the primary enrollment rates, while the effects of privatization of primary education are not very significant compared to those of secondary education. Privatization of secondary education appears to be much more strongly related with the school enrollment rates. Second, the variable shows the effects only on the primary enrollment rates. Third, the effects are opposite on female and male enrollment rates. A higher level of privatization of secondary education has positive effects on female education and negative effects on male education, meaning that the higher level of privatization of secondary education is associated with the higher female primary net enrollment rate and with the lower male primary net enrollment rate. The opportunity cost for secondary education is much higher than that of primary schools especially for male students since they can physically work as much as adults. This seems to help to explain the negative effects of privatization of secondary education on male enrollment rates. On the other hand, a higher level of privatization of secondary education encourages female education. This may be because private schools provide safer environments and better facilities become much more important for older female students.

However, it is difficult to understand why the variable affects only primary school enrollments and not secondary enrollments. The expectation of future schooling, the access to secondary education, such as quality of reachable schools and their costs, seems to affect families' educational decision-making for primary education.

The level of public expenditure on education as % of GDP is a significant variable for the female enrollment rate at the 10 % level and for the male enrollment rate at the 5 % level. Based on the results obtained, it appears that the higher level of public expenditure on education as % of GDP is associated with the higher female primary net enrollment rate but with the lower male primary net enrollment rate. Negative externality may exist. Since girls' education has been much more focused recently, boy's education may not have been paid enough attention to. In addition, while the level of public expenditure on education as a percentage of GDP shows some significant effects on the primary school enrollment rate, the level of public expenditure on education as a percentage of government spending does not seem to have significant effects on the primary school enrollment rate. This may imply that the actual amount of money spent on education is a more important factor to increase primary enrollment rates than the level of government's commitment to the education sector, meaning that even if the government focuses on improving the education sector, the impact could be small if the amount of national budget is considerably small compared to its national GDP.

A larger share for primary education as a % of total educational expenditure appears to be associated with the lower male primary net enrollment rate (shown statistical significance at the 5 % level in both models), while it appears to be associated with the higher female primary net enrollment rate (shown marginal significance in one model). Although it is commonly assumed that larger share for primary education seems to improve both female and male enrollment rates,

the result does not totally support this assumption. The male primary net enrollment rate is negatively affected not only by larger educational expenditure as percentage of GDP as discussed above, but also by larger share for primary education as percentage of total educational expenditure. As discussed above, this may also show negative externality from too much focus on girl's education.

Based on the result obtained, it appears that the period of secondary education is much more strongly influential to primary school enrollment rates than the period of secondary education. The longer the period of secondary education, the lower the female primary net enrollment rate but the higher the male primary enrollment rate. Secondary education could be less practical for females than for males. Female students may want a diploma and male students may want knowledge and skills more from secondary education. This could help to explain the relationship between the period of secondary education and female and male secondary net enrollment rates. However, it is not clear why it only affects the primary school enrollment rate and not the secondary school enrollment rate. The level of privatization of secondary education and the expectation for future schooling may affect current educational decision making for children's primary education.

The relationship between the teacher/pupil ratios at the primary and secondary education levels and primary school enrollment rate is interesting. The teacher/pupil ratio at the primary education level appears to have more significant effects on the primary enrollment rate than the ratio at the secondary education level. The teacher/pupil ratio at the primary education level is statistically significant at the 1 % level in two of the four models, and the ratio at the secondary education level shows significance at the 10 % level only in one of the four models. The higher teacher/pupil ratio appears to be associated with the lower female primary net enrollment rate at

both education levels, while the higher ratio appears to be associated with the higher male primary net enrollment rates at the primary education level.[27] The teacher/pupil ratio could be an indicator for both quality and quantity of education provided in a country. It is commonly assumed that the lower teacher/pupil ratio could provide better education to students since teachers could pay more attention to each student. In addition, the lower teacher/pupil ratio may imply a larger number of schools available in a country. Therefore, the lower teacher/pupil ratio is assumed to increase the school enrollment rate. However, my result supports this assumption only for the case of female students and rejects it for the case of male students at the primary education level.[28] This may reflect boy's general preferred learning style. They may feel more comfortable learning in a larger group rather than having too much attention from teachers. This needs further research.

[27] The teacher/pupil ratio at the secondary education level does not show any significant effect on the male primary net enrollment rates.

[28] Since one of the two models for all four combinations (the teacher/pupil ratio at the primary education level and the female primary net enrollment rate, the teacher/pupil ratio at primary education level and the male primary net enrollment rate, the teacher/pupil ratio at the secondary education level and the female primary net enrollment rate, the teacher/pupil ratio at the secondary education level and the male primary net enrollment rate) shows high p value (more than 0.5) and omitted in the second regression analysis, these results is not as reliable as some other variables that shows high significance in all models.

Table 17 Educational variables and the female and male primary enrollment rates

ID	Prim Female w/o NetSecMal (n=55)		Prim Female w/o NetSecFem (n=54)		Prim Male w/o NetSecMal (n=58)		Prim Male w/o NetSecFem (n=97)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
CompEdPeri							-0.1067	0.7594
PriEdPeri	1.5323	0.1289	1.5699	0.3295	-3.1140	0.0657***	1.5210	0.2570
SecEdPeri	-1.9727	0.0116**	-2.7930	0.0269**	1.1818	0.3536	3.8282	0.0023*
EduSharePri	0.05030	0.2263	0.08161	0.1225	-0.2078	0.0112**	-0.1001	0.0292**
EduShareSec			0.06435	0.3250	-0.07410	0.4110	0.01514	0.7586
NetPriFem	--	--	--	--	0.8192	<.0001*	0.9539	<.0001*
NetPriMal	0.8028	<.0001*	0.9626	<.0001*	--	--	--	--
NetSecFem	0.1752	<.0001*	NA	NA	-0.03434	0.5818	NA	NA
NetSecMal	NA	NA	0.01707	0.7268	NA	NA		
PrivatePri	-0.07325	0.0700***	-0.1042	0.0935***	0.1543	0.0196**	0.08122	0.2096
PriateSec	0.1152	0.0006*	0.1499	0.0026*	-0.1437	0.0064*	-0.1575	0.0005*
PubExGDP	0.4372	0.0544***	0.5313	0.0759***	-0.6932	0.0499**	-0.5745	0.0469**
PubExGovt	-0.03676	0.6220	-0.03638	0.6789	0.1917	0.1372		
TeaPupPri			-0.2801	0.0025*			0.3704	<.0001*
TeaPupSec	-0.1278	0.0828***						
Urbanization			0.02286	0.6743	-0.05768	0.3587		

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.4.4 What socio-cultural characteristics of a country can explain the low primary school enrollment rates?

To answer this question, I used the primary female and male enrollment rates as dependent variables (Y) and the socio-cultural variables as independent variables (X). Two different regression models were run for both the primary female and male enrollment rates due to the high correlation between the female and male literacy rates. The summary of all the analyses is reported in the Table 19.

The relationship between the socio-cultural variables and female primary net enrollment rate is as follows. The level of ethnic fractionalization, female and male literacy rates, and level of urbanization are statistically significant for the female primary net enrollment rate at the 1 % level in all models. Regional variable is significant for the female primary net enrollment rate at the 5 % and 10 % levels, depending on model selection. The percentage of women in the parliament is also a significant variable for the female primary net enrollment rate at the 1 % and 10 % levels, depending on model selection. Variable for Muslim religion shows significance for the female primary net enrollment rate at the 10 % level in one model and marginal significance in the other. The female literacy rate is statistically significant for the female primary net enrollment rate at the 5 % level in both models. The percentage of women in the parliament shows marginal significance for the female primary net enrollment rate in both models. Variable for Muslim religion shows marginal significance in one model.

On the other hand, the relationship between the socio-cultural variables and male primary net enrollment rate is as follows. The male literacy rate and level of urbanization are statistically significant for the male primary net enrollment rate at the 1 % level. The level of ethnic

fractionalization is significant for the male primary net enrollment rate at the 5 % and 10 % levels depending on model selection. Regional variable shows significance for the male primary net enrollment rate at the 10 % level in one model and marginal significance in the other.

The level of urbanization is statistically significant with positive estimates for the female and male primary net enrollment rates at the 1 % level in all models, meaning that higher level of urbanization appears to be associated with the higher female and male primary net enrollment rates. Children living in urban areas seem to be more advantageous than those in rural areas in terms of access to primary education. From the socio-cultural perspective, as discussed in the literature review, the reason can be interpreted as traditional culture and social norms play less important roles on people in urban areas and people tend to have much more modern and westernized values and perspectives, which value formal education and devalue child labor.

The level of ethnic fractionalization appears to have more significant effects on the female primary net enrollment rate than on the male primary net enrollment rate.[29] That is, girls are more disadvantageous. The higher level of ethnic fractionalization has a negative impact on both female and male enrollment rates. The higher level of ethnic fractionalization appears to be associated with the lower school enrollment rate. My results seem to support the discussions that lower ethnic fractionalization makes the government more stable, more effective and more efficient (Annet, 2001), and it also facilitates good public provision (Alesina & La Ferrara, 2004). Although Annet (2001) points that religious fractionalization also has the same impact, my results do not show the significant effects of religious fractionalization.

The female and male literacy rates have positive impacts on the female and male primary net enrollment rates. It appears that the higher the adult literacy rate, the higher the female and

[29] Ethnic fractionalization is a significant variable for the female primary net enrollment rates at the 1 % level in both models, while it is significant at the 5 % and 10 % levels for the male enrollment rates.

male primary net enrollment rates. The results obtained confirm the idea that decision making process for literate adults seems to be less controlled by traditional social norms and cultural beliefs which might have negative impacts on schooling.

Regional variable is found fairly significant for the female and male primary net enrollment rates. Based on the results obtained, Asian region has the highest enrollment for both female and male students, while European region has the lowest. As mentioned in the discussion of the socio-cultural variables and the rate of child labor, European countries selected for my study do not seem to appropriately represent European region due to the country-selection procedure. However, this variable still shows interesting results. Asian region seems to have the considerably high primary school enrollment rate compared to other regions such as Africa and Latin America although poverty level in Asian region could be as serious as other regions. Asian region seems to value primary education more than other regions.

In terms of variables that measure cultural openness (the level of female labor force in the economy, female literacy rate, and percentage of women in the parliament), the level of female labor force in the economy is not a significant variable in any models, the female literacy rate, as discussed, is a significant variables with positive estimates for the female primary net enrollment rate, and the percentage of women in the parliament is also significant with positive estimates for the female primary net enrollment rate. Two of the three variables confirm that the higher level of cultural openness to women has positive effects as a rate-increasing factor on primary school enrollment rates.

The percentage of the Muslim population shows some negative effects on the primary enrollment rate, especially for female students. The higher percentage of the Muslim population in a country is associated with the lower primary school enrollment rate, especially for the

female primary net enrollment rate. It is well known that some counties with high Muslim population have less access to girls' education because of religious and cultural views.

Table 18 Socio-cultural variables and the female and male primary enrollment rates

ID	Prim Female w/o MalLiteracy (n=232)		Prim Female w/o FemLiteracy (n=232)		Prim Male w/o MalLiteracy (n=232)		Prim Male w/o FemLiteracy (n=232)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
EthFra	-0.2496	0.0063*	-0.2472	0.0037*	-0.1577	0.0434**	-0.1443	0.0630***
FemLabor	0.2539	0.4016	0.1909	0.5021				
Region		0.0918***		0.0361**		0.0642***		0.1231
FemLiteracy	0.2787	0.0006*	NA	NA	0.1686	0.0257**	NA	NA
MalLiteracy	NA	NA	0.3502	0.0013*	NA	NA	0.3053	0.0058*
NWP	0.1917	0.0680***	0.2057	0.0538*	0.1876	0.1113	0.1937	0.1002
RelCath								
RelMus	-0.1508	0.0741***	-0.1152	0.1376	-0.1109	0.1326	-0.08665	0.2613
RelFra							-0.04835	0.5993
RelPro	-0.1473	0.3350			-0.1649	0.2141	-0.1319	0.3079
Urban	0.6326	<.0001*	0.6236	<.0001*	0.4054	0.0011*	0.3773	0.0017*
1 (Africa)	10.9745	11.2900	6.3155	0.5348	0.4040	0.9673	0.1961	0.9840
2 (Asia)	24.0772	11.1791	21.8067	0.0403	14.1272	0.1513	13.2581	0.1695
3 (Latin)	9.8985	9.8829	7.9908	0.3838	2.4485	0.7697	2.4639	0.7676
4 (Middle East)	19.9082	14.0435	11.0653	0.3994	12.3754	0.2896	7.0211	0.5446
5 (Europe)	0	.	0		0	.	0	.

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.5 WHAT COUNTRY CHARACTERISTICS CAN EXPLAIN THE LOW SECONDRY SCHOOL ENROLLMENT RATES?

The national characteristics that can explain low secondary school enrollment are discussed from economic, political, educational and socio-cultural views in this subsection. The analysis will discuss the effects of the selected independent variables on secondary school enrollment rates.

4.5.1 What economic characteristics of a country can explain the low secondary school enrollment rates?

To answer this question, I used the female and male secondary net enrollment rates as dependent variables (Y) and the economic variables as independent variables (X). Since relationships between the percentages of employments in the service and agricultural sectors and between the female and male literacy rates are strongly correlated with each other (more than 90 %), four different regression analyses for each female and male enrollment rates were run. The summary of all the analyses is reported in the Table 20 for the female enrollment rate and Table 21 for the male enrollment rate.

Relationship between the economic variables and female secondary net enrollment rate are as follows. The percentage of female labor force in the economy shows statistical significance for the female secondary net enrollment rate at the 1 % level in all models. The fertility rate is statistically significant for the female secondary net enrollment rate at the 1 % level in three of the four models. The level of activity in the informal economy, GDP per capita, GDP growth rate, level of industrialization, and level of urbanization are sensitive to the changes

in the selection of independent variables (between the employment rates in the service and agricultural sectors and between the female and male literacy rates) and show significance or marginal significance for the female secondary net enrollment rate at the different levels depending on model selection. The level of foreign direct investment shows marginal significance for the female primary enrollment rate in two of the four models.

The relationship between the economic variables and male secondary net enrollment rate are described as follows. The percentage of female labor force in the economy and GDP per capita seem to be the most significant variables for the male secondary net enrollment rate. They are statistically significant at the 1 % level in all models. The employment rate in the agricultural sector, level of foreign direct investment, level of industrialization (industry value added), unemployment rate, and level urbanization are all significant for the male secondary net enrollment rate at different levels depending on model selection.

The percentage of female labor force in the economy appears to be the most significant economic variable that affects the secondary school enrollment rate in all models. Different from the effects on the primary enrollment rate, the higher percentage of female labor force in the economy appears be associated with an increase in the female and male secondary net enrollment rates. It seems that additional income from mothers and other female family members increases probability of sending their children to secondary schools regardless of sexual difference. This may imply that secondary education in many of less-developed countries is still a luxury good, and additional income is very important to send children to secondary school. In additions, the higher female employment rate usually goes hand in hand with a country's higher level of development. This may imply the secondary education system has expanded in such countries with a higher female employment rate.

The fertility rate has negative effects on the secondary female. It appears that higher fertility rate is associated with the lower female secondary net enrollment rate. In considering the relationship of the rate of child labor and fertility rate that shows that the higher fertility rates is associated with an increase in the rate of child labor, it seems to be confirming that parents in countries with a higher fertility rate choose having more children as child laborers in order to gain additional income rather than investing in fewer children by sending them to school for the future (quantity over quality) (Hazan & Berdugo, 2002; Chalraborty & Das, 2003). However, interestingly, there is no effect on male secondary net enrollment rates.

GDP per capita is also an important variable for the secondary school enrollment rate. It appears that higher GDP per capita is associated with an increase in the secondary school enrollment rate, especially male students, while GDP per capita is not a significant variable for the rate of child labor and the primary enrollment rate. Secondary education, therefore, may be still a luxury good to purchase in poorer countries. Interestingly, the GDP growth rate shows negative impacts on the secondary female enrollment rate. This appears to support the idea that the higher GDP growth rate makes opportunity costs of secondary education higher for female students and consequently decreases the female secondary net enrollment rate.

The higher level of industrialization appears to be associated with a decrease in the secondary school enrollment rate, especially the male enrollment rate. This rejects the common views that industrialization is positively correlated with the higher school enrollment rate (Federman & Levine, no date) by increasing school demands by providing employment opportunities for more skilled and educated adults (Buchmann & Brakewood, 2000), and causing bigger wage difference between educated and uneducated workers and between child and adult workers, which eventually increases school demands (Hazan & Berdugo, 2002). Secondary

education by definition includes both lower and upper secondary education. This may help understanding the results, since upper secondary education is far more luxury and upper-secondary-school-aged children may be considered young adults especially in less-developed countries. Those children may be considered old enough to find employment legally in the industrial sectors. In addition, as explained in the analysis between economic variables and primary school enrollment rates, there may be negative externalites. Lower-secondary school students, who are probably under the legal minimum age to work, may drop out of schools, look for a job and end up unemployed when industrialization is increasing and requires a more educated skilled labor force.

The higher level of urbanization appears to be associated with an increase in the secondary school enrollment rate, although the level of urbanization is not a significant variable for the primary school enrollment rate. From the economic point of view, more people in urban areas seem to be able to afford to enroll their children in secondary schools.[30] Also, many jobs in urban areas require educated laborers, which encourage children to attend secondary schools, while jobs in rural areas tend to be labor-intensive and/or require skills that have to be learned through on the job experience, which discourages children to attend schools.

The level of foreign direct investment is statistically significant for the male secondary net enrollment rate at the 5 % level in two of the four models and at the 10 % level in the rest of the two models and marginally significant for the female secondary net enrollment rate in two of the four models. As discussed in the literature review section, both negative and positive impacts of foreign direct investment are considered. Based on the results obtained, the higher

[30] It may seem to be contradicted that industrialization and urbanization have opposite effects on the secondary enrollment rate, since those two variables are closely related to each other. However, they do not indicate the same phenomenon. For example, urbanization can be lead by developing the service sector of a country.

the foreign direct investment, the higher the secondary enrollment rate, especially for the male enrollment rate. The great flow of foreign direct investment not only spurs economic development of a country but also facilitates employment of adults with decent educational background who can work in corporations, which seems to increase the demand for secondary education. In addition, inflow of foreign direct investment makes more difficult for children and youth to find job opportunities due to the codes of conduct that limit or ban the use of child labor in their production (Neumayer & de Soysa, 2004), which leaves two options to children: stay jobless or go to school. From this perspective, children tend to attend schools instead of being jobless based on my result.

The level of activity in the informal economy is statistically significant or marginally significant only for the female secondary net enrollment rate, while it is omitted in the second regression analysis in all models for the secondary male enrollment rate due to the high p values (more than 0.5) in the first analysis. It appears that when the level of activity in the informal economy is higher, the female secondary net enrollment rate is also higher. It also seems to have more positive influence on poor families than negative influence. Considering that the higher level of activity in the informal economy appears to be associated with a decrease in the rate of child labor in my study, it seems to help poor families to survive, to keep their children out of work, and to send female children to secondary schools. Many less-developed countries do not have the well-organized formal economy and, thus, have less employment opportunities than needed in the formal economy. People who are engaged in the informal economy in such countries tend to be poorer and less educated, and their income tends to be less stable. A higher level of activity in the informal economy in those countries may imply that many poor people even with little education can actively participate in informal sector the economic activity. This

may help to facilitate female secondary education which, for poorer families, is the last priority among female and male primary and secondary education.

The higher employment rate in the agricultural sector appears to be associated with an increase in the male secondary net enrollment rate, while it is not a significant variable for the female secondary net enrollment rate. Countries with larger employment in the agricultural sector are usually considered to be poorer than those with larger employment in the industrial and service sectors. In addition, many children in rural areas are engaged in labor in the agricultural sector with their parents. Those factors seem to be disadvantageous for children to attend schools. The employment rate in agriculture is not a significant variable for the female and male primary net enrollment rates and for the female secondary net enrollment rate. Significant advantageous effects only on the male secondary net enrollment rate are difficult to explain in my study.

The higher unemployment rate appears to be associated with an increase in the male secondary net enrollment rate, while it is not significant for the female enrollment rate. The high unemployment rate implies there are fewer job opportunities. It is reasonable for children to go to school to invest in themselves instead of being unemployed without contributing financially to their families under such a circumstance. This result again rejects the Harris-Todaro model which argues higher unemployment rates induce child labor.

Interestingly, the adult literacy rate is not a significant variable for either female or male secondary net enrollment rate. This again seems to confirm that secondary education is a luxury good in many less-developed countries. Even if literate parents tend to be more productive and know the importance of education for socio-economic upward mobility (Ray, no date; Hussain &

Mashus, 2003), the result seems to suggest that parents are simply not able to afford to send their children to secondary schools.

Table 19 Economic variables and the female secondary enrollment rates

ID	Sec Female w/o EmpSer & MalLiteracy (n=163)		Sec Female w/o EmpSer & FemLiteracy (n=79)		Sec Female w/o EmpAgr & MalLiteracy (n=78)		Sec Female w/o EmpAgr & FemLiteracy (n=78)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
EmpAgr					NA	NA	NA	NA
EmpInd								
EmpSer	NA	NA	NA	NA				
InfEcon	1.6219	<.0001*	1.2252	0.0942***	0.9224	0.1225	0.9224	0.1225
FDI					0.6600	0.1311	0.6600	0.1311
FemLabor	1.3249	<.0001*	1.1164	0.0027*	1.1459	0.0067*	1.1459	0.0067*
FemLiteracy			NA	NA			NA	NA
MalLiteracy	NA	NA			NA	NA		
Fertility			-10.6752	<.0001*	-11.6826	<.0001*	-11.6826	<.0001*
GDP	0.001317	0.0287**	0.001051	0.0285**	0.000871	0.1174	0.000871	0.1174
GDP Growth	-0.1839	0.1759	-0.3218	0.0917***	-0.2553	0.1401	-0.2553	0.1401
IndustrialVar	-0.5287	0.0004*	-0.04469	0.8280	-0.3415	0.0657***	-0.3415	0.0657***
Inflation								
TradeExpo								
Unemploy	0.3116	0.1685	0.1857	0.4126	0.2096	0.4542	0.2096	0.4542
Urbanization	0.9089	<.0001*	0.1903	0.2231	0.3334	0.0764***	0.3334	0.0764***

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

Table 20 Economic variables and the male secondary enrollment rates

ID	Sec Male w/o EmpSer & MalLiteracy (n=112)		Sec Male w/o EmpSer & FemLiteracy (n=112)		Sec Male w/o EmpAgr & MalLiteracy (n=118)		Sec Male w/o EmpAgr & FemLiteracy (n=118)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
EmpAgr	0.3345	0.0213	0.3345	0.0213**	NA	NA	NA	NA
EmpInd					-0.4339	0.1679	-0.4339	0.1679
EmpSer	NA	NA	NA	NA	-0.2255	0.1684	-0.2255	0.1684
InfEcon								
FDI	0.9181	0.0137**	0.9181	0.0137**	0.9533	0.0081*	0.9533	0.0081*
FemLabor	1.4207	0.0022*	1.4207	0.0022*	1.4546	0.0021*	1.4546	0.0021*
FemLiteracy			NA	NA			NA	NA
MalLiteracy	NA	NA			NA	NA		
Fertility								
GDP	0.002188	0.0045*	0.002188	0.0045*	0.002177	0.0053*	0.002177	0.0053*
GDP Growth	-0.2295	0.2089	-0.2295	0.2089	-0.2130	0.2025	-0.2130	0.2025
IndustrialVar	-0.4844	0.0018*	-0.4844	0.0081*	-0.4568	0.0141**	-0.4568	0.0141**
Inflation								
TradeExpo								
Unemploy	0.7327	0.0644***	0.7327	0.0644***	0.6933	0.0718***	0.6933	0.0718***
Urbanization	0.5115	0.0360**	0.5115	0.0360**	0.4904	0.0450**	0.4904	0.0450**

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.5.2 What political characteristics of a country can explain the low secondary school enrollment rates?

To answer this question, I used the female and male secondary net enrollment rates as dependent variables (Y) and the political variables as independent variables (X). There are strong correlations between the level of government effectiveness and level of voice accountability and between the female and male literacy rates. Therefore, four different regression models were run for both female and male primary net enrollment rates in order to investigate the effect of each independent variable. Table 21 summarizes the result for the secondary female enrollment rate, and Table 22 for the secondary male enrollment rate.

The statistical relationship between the female secondary net enrollment rate and political variables is described as follows. The fertility rate is statistically significant with negative estimates for the female secondary net enrollment rate at the 1 % level in all four models. The level of government effectiveness also is also statistically significant at the 1 % level in both models. The level of urbanization shows significance with positive estimates at the 1 % level in one of the four models and at the 5 % level in three of the four models. The ILO Worst Forms of Child Labor Convention No. 182 is significant at the 10 % level in all four models. The level of control of corruption is sensitive to the changes in some independent variables and shows significant effects with positive estimates at the 1% level in one of the two models and at the 5 % level in the other. Legal origin is also sensitive to the changes in some independent variables and statistically significant at the 10 % level in three of the four models. The female literacy rate is marginally significant with a positive estimate in one of the two models.

The statistical relationship between the male secondary net enrollment rate and political variables is described as follows. The fertility rate is statistically significant with negative estimates at the 1 % level in three of the four models and at the 5 % level in one of the four models. The ILO Worst Forms of Child Labor Convention No. 182 is significant at the 5 % level in three of the four models and marginally significant in one of the four models. Legal origin is sensitive to the changes in some independent variables and shows significant effects at the 5 % level in three of the four models. The percentage of women in the parliament is also sensitive to the changes in some independent variables and significant with negative estimates at the 10 % level in three of the four models.

The fertility rate seems to be one of the most significant variables. It appears that higher fertility rate is associated with a decrease in both female and male secondary net enrollment rates. The result is consistent with that for the primary enrollment rate. Therefore, again, government commitment to reduce the fertility rate by increasing public health expenditure could increase the school secondary enrollment rate. The higher fertility rate is also associated with poverty which tends to go hand in hand with the low secondary school enrollment rate.

The higher level of urbanization appears to be associated with an increase in both female and male enrollment rates. From the political perspective, people in urban areas tend to be more educated and more aware of their political rights including their children's rights to education. In addition, they are more easily reachable by the public institutions. These elements help to facilitate secondary education.

The ILO Worst Forms of Child Labor Convention No. 182 shows positive effects on both female and male secondary net enrollment rates in three of the four models. The countries that have ratified the ILO Worst Forms of Child Labor Convention No. 182 appear to have the higher

secondary enrollment rate, while the ILO Minimum Age Convention No. 138 is not significant for either enrollment rate. Although the ILO Worst Forms of Child Labor Convention No. 182 has a shorter history than the ILO Minimum Age Convention No. 138, the ILO Worst Forms of Child Labor Convention No. 182 seems more effective to increase the secondary enrollment rate. Also, secondary school students may already be of the legal minimum working age. The Convention No. 138 is not effective in keeping those over-aged students in school settings.

Legal origin shows significant effects on both female and male secondary net enrollment rates in three of the four models for each. Based on my result, countries with laws originated in the French law have the lowest secondary school enrollment rate, while countries with socialist laws have the highest secondary school enrollment rates, while legal origin is not a significant variable for either female or male primary net enrollment rate. Just like the result for the rate of child labor, this result also supports findings from La Porta et. al. that laws originated in the French civil laws are the least protective and the legal systems originated in the French law have the lowest enforceability (1998). French-originated laws have negative impacts not only on the rate of child labor but also on the secondary school enrollment rate.[31]

The level of control of corruption shows significance with positive estimates for the female and male secondary net enrollment rates in two of the four models for each. It appears that the higher the level of control of corruption the higher the secondary enrollment rate. This seems to confirm that corruption has negative impacts on the allocation of public spending on education (Mauro, 1997) and that corruption causes educational ineffectiveness (Parajuli, 2001). The more a government could control corruption, the more effectively educational budget is used.

[31] Countries with French-originated laws tend to be African countries. These African countries tend to be poorer than those in other regions. This economic situation may have affected the results.

The level of government effectiveness is significant only for the female secondary net enrollment rate in both models. The higher level of government effectiveness appears to be associated with an increase in the female secondary net enrollment rate. It is fairly reasonable that the school enrollment rate increases when a government functions effectively. With the trend of promoting female education in the world, many governments may be establishing educational policies that promote female education and countries with a higher level of government effectiveness may be more effectively enforcing these policies.

The percentage of women in the parliament is significant for the male secondary net enrollment rate in three of the four models, while it is not a significant variable for the female secondary net enrollment rate in any models. Based on the result obtained, it appears that the higher percentage of women in the parliament is associated with a decrease in the male secondary net enrollment rate. As described in the Chapter 2, women tend to care about issues around children, and therefore, the higher percentage of women in the parliament could improve policies related children's education.

Table 21 Political variables and the female secondary enrollment rates

ID	Sec Female w/o GovEff & MalLiteracy (n=58)		Sec Female w/o GovEff & FemLiteracy (n=81)		Sec Female w/o VoiceAcco & MalLiteracy (n=58)		Sec Female w/o VoiceAcco & FemLiteracy (n=58)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
Conv.182		0.0744***		0.0577***		0.0664***		0.0659***
Conv. 138								
Corruption	7.3562	0.0444**	7.3532	0.0055*				
GovEff	NA	NA	NA	NA	10.1109	0.0034*	9.8130	0.0043*
*LegalOr		0.1773		0.0636***		0.0519***		0.0654***
FemLiteracy	0.08369	0.4133	NA	NA	0.1561	0.1163	NA	NA
MalLiteracy	NA	NA			NA	NA	0.1441	0.2715
Fertility	-8.8233	0.0031*	-9.9238	<.0001*	-7.4081	0.0049*	-8.0160	0.0033*
NWP								
RuleLaw								
VoiceAcco					NA	NA	NA	NA
Urbanization	0.4128	0.0122**	0.4447	0.0009*	0.3690	0.0121**	0.3711	0.0132**
Conv 182 0	-2.1414		-3.4614		-0.2138		-0.2907	
Conv 182 1	0		0		0		0	
English Law			8.3046		5.3938		6.1245	
Socialist Law			10.9333		18.1046		17.7500	
French Law			0		0		0	

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

Table 22 Political variables and the male secondary enrollment rates

ID	Sec Male w/o GovEff & MalLiteacy (n=68)		Sec Male w/o GovEff & FemLiteacy (n=68)		Sec Male w/o VoiceAcco & MalLiteracy (n=50)		Sec Male w/o VoiceAcco & FemLiteracy (n=68)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
Conv.182		0.0134**		0.0134**		0.1122		0.0194**
Conv. 138	-0.9008	0.4247	-0.9008	0.4247	-3.1625	0.4230	-0.8462	0.4577
Corruption	6.5186	0.0429**	6.5186	0.0429**	4.7706	0.3879	5.3866	0.1426
GovEff	NA	NA	NA	NA	3.9329	0.3741	1.5721	0.5508
LegalOr		0.0395**		0.0395**		0.2626		0.0428**
FemLiteracy			NA	NA	0.1163	0.3713	NA	NA
MalLiteracy	NA	NA			NA	NA		
Fertility	-8.3319	0.0020*	-8.3319	0.0020*	-7.2523	0.0430**	-8.3260	0.0032*
NWP	-0.4343	0.0842***	-0.4343	0.0842***	-0.2698	0.3775	-0.4475	0.0875***
RuleLaw								
VoiceAcco					NA	NA	NA	NA
Urbanization	0.3450	0.0201**	0.3450	0.0201**	0.2673	0.1455	0.3273	0.0324**
Conv 182 0	-0.2460		-0.2460				-0.05032	
Conv 182 1	0		0				0	
English	6.5674		6.5674				6.3096	
Socialist	14.6500		14.6500				14.5290	
French	0		0				0	

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.5.3 What educational characteristics of a country can explain the low secondary school enrollment rates? Does the level of government expenditure on education affect the secondary school enrollment rates?

To answer this question, I used the female and male secondary net enrollment rates as dependent variables (Y) and the educational variables as independent variables (X). There are strong correlations between the female and male primary net enrollment rates. Thus, two different regression models were created and run for the female and male primary net enrollment rates. The summary of all the analyses is reported in the Table 23.

For the female secondary net enrollment rate, the male secondary net enrollment rates are statistically significant at the 1 % level in both models. In addition, duration of secondary education, the male primary net enrollment rate, and level of urbanization are sensitive to the changes in some independent variables (the female and male primary net enrollment rates) and show statistical significance at the 5 % level in one model. The level of privatization of secondary education is marginally significant in one model.

For the male secondary net enrollment rate, the female secondary net enrollment rate is statistically significant at the 1 % level in both models and the male primary net enrollment rate is marginally significant in one model.

The secondary net enrollment of one sex is significant on the opposite sex with positive estimates at the 1 % level just like at the primary enrollment rates. The female and male enrollment rates increase together when overall school enrollment rate increases.

The male primary net enrollment rate shows significant effects on the female secondary net enrollment rate and marginally significant effects on the male secondary net enrollment rate.

It appears that the higher male primary net enrollment rate is associated with a decrease in the female secondary net enrollment rate and with an increase in the secondary male enrollment rate. It is reasonably assumed that the higher primary enrollment rate has positive effects on the secondary enrollment rate. Since, generally speaking, male primary education is the first priority and female secondary education is the last priority, older female children may need to support families financially in order to send their younger male siblings to primary school.

As explained above, the duration of secondary education, teacher/pupil ratio at the primary education level, and level of urbanization show significant effects on the female secondary net enrollment rate in one model. Accordingly, it appears that longer period of secondary education is associated with a decrease in the female secondary net enrollment rate, the higher teacher/pupil ratio is associated with a decrease in the female secondary net enrollment rate, and the higher level of urbanization is associated with an increase in the female secondary net enrollment rate, based on the results obtained. All of these results seem to be reasonable. Longer period of secondary education may discourage poor parents to send their daughters to schools, especially older children can substitute for mothers and, moreover, they may be able to financially contribute to their families like adult workers and/or marry and reduce parents' financial burden by leaving home. The higher teacher/pupil ratio lowers the quality of education provided, which may lower students' achievement. This may discourage students to go to secondary schools. The higher level of urbanization implies that schools in urban areas tend to provide better education with better teachers so that students are encouraged to attend secondary schools.

Table 23 Educational variables and the female and male secondary enrollment rates

ID	Sec Female w/o NetPriMal (n=90)		Sec Female w/o NetPriFem (n=55)		Sec Male w/o NetPriMal (n=71)		Sec Male w/o NetPriFem (n=71)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
CompEdPeri	0.6271	0.1568	-0.8311	0.2671				
PriEdPeri								
SecEdPeri	0.4960	0.5558	-3.4182	0.0248**	-0.04785	0.9387	-0.04683	0.9389
EduSharePri	0.05812	0.1596	0.06006	0.3893	0.002996	0.9491	0.000706	0.9875
EduShareSec	0.004711	0.9041	0.09014	0.2616	-0.00673	0.9117	0.008110	0.8922
NetPriFem			NA	NA	0.03779	0.4483	NA	NA
NetPriMal	NA	NA	-0.2673	0.0347**	NA	NA	0.06588	0.1394
NetSecFem	--	--	--	--	0.9032	<.0001*	0.8964	<.0001*
NetSecMal	0.9444	<.0001*	0.9540	<.0001*	--	--	--	--
PrivatePri								
PriateSec	0.03987	0.3381	0.036566	0.1299				
PubExGDP	0.1413	0.6473			0.01427	0.9560		
PubExGovt			-0.08972	0.4986	-0.00867	0.9201	-0.00304	0.9700
TeaPupPri	-0.2144	0.0200**	-0.1100	0.4412				
TeaPupSec								
Urbanization	0.09724	0.2034	0.2173	0.0120**	-0.03602	0.6081	-0.04134	0.5397

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.5.4 What socio-cultural characteristics of a country can explain the low secondary school enrollment rates?[32]

To answer this question, I used the female and male secondary net enrollment rates as dependent variables (Y) and the socio-cultural variables as independent variables (X). Two different regression models were run for both female and male secondary net enrollment rates due to the high correlation between the female and male literacy rates. The summary of all the analyses is reported in the Table 24.

For the female secondary net enrollment rate, the percentage of female labor force in the economy and level of urbanization are significant at the 1 % level in both models. In addition, the level of ethnic fractionalization and regional variable are significant at the 5 % level in both models. The female literacy rate is also significant at the 10 % level. The percentage of women in the parliament shows marginal significance.

For the secondary male enrollment rate, the level of urbanization is significant at the 1 % level in both models. The percentage of female labor force in the economy is significant at the 1 % level in one model and at the 5 % level in the other. Regional variable is significant at the 5 % level in both models. The female literacy rate is significant at the 5 % level and the male literacy rate is marginally significant. The percentage of women in the parliament is sensitive to the changes in some independent variables (the female and male literacy rates) and shows marginal significance in one model.

The level of urbanization is significant with positive estimates at the 1 % level for both female and male secondary net enrollment rates in both models. The higher level of urbanization

[32] These results might not be significant due to lack of data and appropriate set of quality variables.

appears to be associated with an increase in the secondary school enrollment rates from socio-cultural point of view. Characteristics of urbanization, which lower the influence from traditional culture and social norms, seem to help increase the secondary school enrollment rate as well as the primary school enrollment rate.

The level of ethnic fractionalization appears to be a more important variable to predict the female secondary net enrollment rate than the male secondary net enrollment rate, since it shows significant effects with negative estimates for the female enrollment rates at the 5 % level in both models and marginal significance with negative estimates for the male enrollment rate for both models. The higher level of ethnic fractionalization, therefore, seems to be associated with a decrease in the secondary school enrollment rate, especially in the female enrollment rate. My results support the discussions that lower ethnic fractionalization makes the government more stable, more effective and more efficient (Annet, 2001), and facilitates good public provision (Alesina & La Ferrara, 2004). In addition, a higher level of ethnic fractionalization implies a higher level of discrimination for certain ethnic groups. Also, in general, girls are much more discriminated against than boys. This helps to understand the stronger effects on female enrollment rates. Religious fractionalization appears to be a non-significant variable for the secondary school enrollment rate. This reject Annet's findings about the same effects of religious fractionalization (2001).

Regional variable is statistically significant at the 5 % level for both female and male enrollment rates. The Middle Eastern region shows the highest secondary school enrollment rate, while the African region shows the lowest rate. The Asian region, while it has the highest primary enrollment rate, seems to have fairy low secondary enrollment rate.

Variables for cultural openness toward women (the level of female labor force in the economy, female literacy rate, percentage of women in the parliament) are all statistically significant or marginally significant not only for the secondary female enrollment rate but also for the secondary male enrollment rate. The higher level of female labor force in the economy, higher female literacy rate, and higher percentage of women in the parliament are all associated with an increase in the secondary school enrollment rate. This implies that if the culture is more open to women it positively affects children's school enrollment.

Table 24 Socio-cultural variables and the female and male secondary enrollment rates

ID	Sec Female w/o MalLiteracy (n=185)		Sec Female w/o FemLiteracy (n=185)		Sec Male w/o MalLiteracy (n=185)		Sec Male w/o FemLiteracy (n=185)	
	Estimate	P value	Estimate	P value	Estimate	P value	Estimate	P value
EthFra	-0.2282	0.0261**	-0.2410	0.0206**	-0.1457	0.1255	-0.1548	0.1038
FemLabor	1.0445	0.0009*	1.1172	0.0004*	0.7926	0.0110**	0.8269	0.0079*
Region		0.0475**		0.0376**		0.0219**		0.0304**
FemLiteracy	0.1400	0.0568***	NA	NA	0.1490	0.0418**	NA	NA
MalLiteracy	NA	NA	0.1011	0.3278	NA	NA	0.1677	0.1004
NWP	0.1442	0.1042	0.1417	0.1124	0.1444	0.1399	0.1410	0.1514
RelCath	0.1113	0.2127	0.1183	0.1993				
RelMus								
RelFra	0.1547	0.1912	0.1756	0.1503	0.1129	0.2769	0.1222	0.2436
RelPro	0.1910	0.2365	0.2263	0.1661				
Urban	0.9085	<.0001*	0.9593	<.0001*	0.7008	<.0001*	0.7311	<.0001*
1 (Africa)	-23.3823	0.0435	-24.8733	0.0342	-27.7403	0.0103	-28.2450	0.0093
2 (Asia)	-5.2885	0.6560	-4.8702	0.6861	-16.5958	0.1231	-16.3974	0.1286
3 (Latin)	-16.6930	0.1142	-17.5689	0.1022	-17.5416	0.0705	-17.5652	0.0711
4 (Middle East)	3.6799	0.7982	2.4204	0.8694	1.3751	0.9108	-0.8481	0.9450
5 (Europe)	0	.	0	.	0	.	0	.

Note: Blank brackets imply that they had p-values above 0.5 in the first analysis and were omitted in the second analysis.
n is the number of the observation used.
* significant at 1 % level
** significant at 5 % level
*** significant at 10 % level

4.6 ANALYSIS FOR ANSWERING OTHER QUESTIONS

This subsection devotes to answering the rest of the three questions (Question 4, 5, and 6). These three questions are:

4. Are there any similarities and differences of national characteristics that affect school enrollment rates between primary and secondary levels?
5. Are there any similarities and differences of national characteristics that affect school enrollment rates between females and males?
6. Which of these four factors: economic, political. Educational, or socio-cultural, is most strongly related to child labor and school enrollment rates?

In order to answer these questions, six tables are created by using the Table 9 to Table 25. Significant variables at the 1 % level are given three points, significant variables at the 5 % level are given two points, significant variables at the 10 % level are given one point, and marginally significant variables are given 0.5 point. All points are added for each variable for each rate (the rate of child labor, female primary net enrollment rate, male primary net enrollment rate, female secondary net enrollment rate, and male secondary net enrollment rate). Tables are created for each factor (economic, political, educational, and socio-cultural). Variables whose scores fall in the range between 10 to 12 out of 12 full points (equivalently 5 and 6 out 6 full points and 3 out of 3 full points) are the variables most likely to consistently and noticeably influence the rate of child labor and/or the school enrollment rates. Variables whose scores are 8 or 9 out of 12 full points (4 out of 6 full points and 2 out of 3 full points) influence the rate of child labor and/or school enrollment rates more inconsistently with less magnitude, but may still have the impacts. Variables whose scores fall in the range between 0 to 7 out of 12 points (1 to 3 out of 6 full

points and 1 out of 3 points) are the least likely to consistently and noticeably influence the rates of dependent variables. In the first part of the discussion, first two types of variables are focused in order to investigate which variables are important to each dependent variable. This makes the comparison easier between female and male students and between primary and secondary schools. Additionally, a table is created to compare the effects of cross-listed variables such as the literacy rate and the level of urbanization. Finally, a table is created by ranking the rates comparing the total points each rate scores for all four factors in order to answer the Question 6. Attention is paid not to the effects of each variable on the rates but to the comparative aspects of effects on each rate.

4.6.1 Summary for the economic variables

The employment rate in the agricultural sector only shows some significant effects as a rate-increasing factor only for the male secondary net enrollment rate (4/6) and no significance on any other rates. The employment rate in the industrial sector shows very high significance as a rate-decreasing factor for the rate of child labor (12/12) and for the female primary net enrollment rate (12/12), and some significance for the male primary net enrollment rate (8/12). The level of foreign direct investment shows high significance as a rate-increasing factor only for the male secondary net enrollment rate (10/12). The level of female labor force in the economy shows very high significance as a rate-decreasing factor on the rate of child labor (12/12) and as a rate-increasing factor on all the school enrollment rates (12/12). Both female and male literacy rates appear to be very significant as rate-decreasing factor for the rate of child labor (12/12) and as a rate-increasing factor for the female primary net enrollment rate (6/6). The fertility rate is highly significant as a rate-increasing factor for the rate of child labor and as a rate-decreasing

factor for female and male primary net enrollment rates (12/12) and some significance as a rate-increasing factor for the female secondary net enrollment rate (9/12), while it does not show any significant effects on the male secondary net enrollment rate (0/12). GDP per capita seems to be highly significant as a rate-increasing factor only for the male secondary enrollment rate (10/12). Industrial value added as % of GDP shows high significance as a rate-decreasing factor only for the male secondary net enrollment rate (10/12). The level of trade export shows some significance as a rate-decreasing factor only for the rate of child labor (8/12). The level of urbanization appears to show very high significance as a rate-decreasing factor for the rate of child labor (12/12) and some significance as a rate-increasing factor for the male secondary net enrollment rate (8/12). The employment rate in the service sector, level of activity in the informal economy, GDP growth rate, inflation rate, level of trade export, unemployment rate are the variables that appear to least likely influence on the dependent variables.

For the rate of child labor, the employment rate in the industrial sector, level of female labor force in the economy, female and male literacy rates, fertility rate, and level of urbanization appear to be most influential variables. For the female primary net enrollment rate, the employment rate in the industrial sector, level of female labor force in the economy, female and male literacy rates, and fertility rate seem to be the most influential independent variables. For the male primary net enrollment rate, the level of female labor force in the economy and fertility rate are the two of the most influential independent variables. For the female secondary net enrollment rate, only the level of female labor force appears to be most influential. For the male secondary net enrollment rate, the level of foreign direct investment, level of female labor force in the economy, and GDP per capita appear to be most influential independent variables. Among

economic variables, only the level of female labor force in the economy has the consistent high-significance on all the dependent variables.

Comparing the total score for the economic variables for each rate, the rate of child labor have the highest score (71.5 out of 168), and the primary male enrollment rate has the lowest score (38 out of 168). Therefore, it appears that the rate of child labor is most affected and the male primary net enrollment rate is least affected by economic stimulation. This seems reasonable considering that there is a strong relationship between poverty and prevalence of child labor and that primary education for males is the most widely expanded education in most countries, which makes the male primary net enrollment rate stable to the changes in national economy.

Table 25 Summary for the economic variables for child labor and school enrollments

ID	Child labor		Prim Female		Prim Male		Sec Female		Sec Male	
	+/-	point	+/-	point	+/-	point	+/-	point	+/-	point
EmpAgr		0/6		0/6		0/6		0/6	+	4/6
EmpInd	-	12/12	-	12/12	-	8/12		0/12		0/12
EmpSer		0/6		0/6		0/6		0/6		0/6
InfEcon	-	1/12		0/12		0/12	+	5/12		0/12
FDI		0/12	+	1/12	+	1.5/12	+	1/12	+	10/12
FemLabor	+	12/12	-	12/12	-	12/12	+	12/12	+	12/12
F-Literacy	-	6/6	+	6/6	+	2/6		0/6		0/6
M-Literacy	-	6/6	+	6/6	+	2.5/6		0/6		0/6
Fertility	+	12/12	-	12/12	-	12/12	-	9/12		0/12
GDP		0/12		0/12		0/12	+	5/12	+	12/12
GDP Growth	+	2/12		0/12		0/12	-	2/12		0/12
Indust-Var	+	0.5/12	+	1/12		0/12	-	5/12	-	10/12
Inflation		0/12		0/12		0/12		0/12		0/12
TradeExpo	-	8/12	+	1.5/12		0/12		0/12		0/12
Unemploy		0/12		0/12		0/12		0/12	+	4/12
Urban	-	12/12	+	1/12		0/12	+	5/12	+	8/12
Total		71.5/168 (0.426)		52.5/168 (0.313)		38/168 (0.226)		44//168 (0.262)		60/168 (0.357)

Note: Left number is the actual points each variables score and right number is the full points when the variable is significant at the one percent level for all models.
Rates for the total actual points to the total full points are in the parenthesis.

4.6.2 Summary for the political variables

The level of government effectiveness shows very high significance as a rate-increasing factor only for the female secondary net enrollment rate. The fertility rate appears to be very highly significant for all the rates. For the rate of child labor, it is a rate-increasing factor with 12 full points. For school enrollment rates, it is a rate-decreasing factor with either 12 or 11 points out of 12. The level of urbanization shows very high significance as a rate-decreasing factor on the rate of child labor (12/12) and some significance as a rate-increasing factor only for the female secondary net enrollment rate (9/12). The ILO Worst Forms of Child Labor Convention No. 182, ILO Minimum Age Convention No. 138, level of control of corruption, legal origin, female and male literacy rates, percentage of women in the parliament, level of rule of law, and level of voice accountability turn to be least influential on any dependent variables.

For the rate of child labor, the fertility rate and level of urbanization are the two of the most influential variables. For female and male primary net enrollment rates and male secondary net enrollment rate, only the fertility rate appears to be most influential. For the female secondary net enrollment rate, the level of government effectiveness, fertility rate, and level of urbanization are most influential independent variables. The fertility rate is the most influential independent variables across the dependent variables.

Comparing the total scores for each rate, it seems that the political variables are much more important for the secondary school enrollment rate than for the primary school enrollment rate. The female secondary net enrollment rate has the highest points (39.5 out of 120) and the male secondary net enrollment rate has the second highest points (37 out of 120), while the male primary net enrollment rate has the lowest points (12 out of 120) and the female primary net enrollment rate has the second lowest points (17 out of 120). This implies that improving the

political spheres, for example, by reforming political systems and establishing more effective policies, could strongly improve the secondary education enrollment rate, but may not be effective in order to improve the primary education enrollment rate.

Table 26 Summary for the political variables for child labor and school enrollments

ID	Child labor		Prim Female		Prim Male		Sec Female		Sec Male	
	+/-	point	+/-	point	+/-	point	+/-	point	+/-	point
Conv.182		0/12		0/12		0/12	+	4/12	+	6/12
Conv. 138		0/12		0/12		0/12		0/12		0/12
Corruption		0/12		0/12		0/12	+	5/12	+	4.5/12
GovEff	-	1/6		0/6		0/6	+	6/6		0/6
LegalOr		2/12		0/12		0/12		3/12		6/12
FemLiteracy		0/6		0/6		0/6	+	0.5/6		0/6
MalLiteracy		0/6	+	1.5/6		0/6		0/6		0/6
Fertility	+	12/12	-	12/12	-	12/12	-	12/12	-	11/12
NWP	+	1/12	+	3/12		0/12		0/12	-	3/12
RuleLaw	-	2/12		0/12		0/12		0/12		0/12
VoiceAcco		0/6	-	0.5/6		0/6		0/6		0/6
Urbanization	-	12/12		0/12		0/12	+	9/12	+	6.5/12
Total		30/120 (0.25)		17/120 (0.142)		12/120 (0.1)		39.5/120 (0.329)		37/120 (0.308)
English										
Socialist		least						least		least
French		most						most		most

Note: Left number is the actual points each variables score and right number is the full points when the variable is significant at the one percent level for all models.
Rates for the total actual points to the total full points are in the parenthesis.

4.6.3 Summary for the educational variables

Duration of secondary education shows some significant effects as a rate-decreasing factor only on the female primary net enrollment rate (4/6). Budgetary share for primary education shows some significance as a rate-decreasing variable only on the male primary net enrollment rate (4/6). The net enrollment rate of the opposite sex at the same level of education shows high significance as a rate-increasing factor (6/6). The male primary net enrollment rate shows some significant effects as a rate-decreasing factor on the female secondary net enrollment rate (2/3). The female secondary net enrollment rate also shows high significance as a rate-increasing factor for the female primary net enrollment rate (3/3). Both female and male secondary school enrollment rates show high significance as a rate-decreasing factor on the rate of child labor (6/6), while female and male primary school enrollment rats do not show any significant effects on the rate of child labor (0/6). The level of privatization of secondary education appears to be highly significant as a rate-increasing factor for the female primary net enrollment rate (6/6) and as a rate-decreasing factor for the male primary net enrollment rates (6/6). The level of public expenditure on education as a % of GDP shows some significance as a rate-decreasing factor for the male primary net enrollment rate. Duration of compulsory education and primary education, budgetary share for secondary education, the level of privatization of primary education, level of public educational expenditure as a % of government spending, teacher/pupil ratios at both primary and secondary education levels turn to be least significant across all the dependent variables.

For the rate of child labor, the female and male net enrollment rates and level of urbanization are the most influential independent variables. Even though there is a correlation between the rate of child labor and female and male primary net enrollment rates in the earlier

analysis, there appears no effect of the female and male primary net enrollment rates on the rate of child labor in this analysis. Therefore, further investigation is necessary for the relationship between the rate of child labor and primary school enrollment. Considering the results of both analyses, it seems that the rate of child labor is much more strongly related with the secondary school enrollment rates than the primary school enrollment rates. For the female primary net enrollment rate, the male primary net enrollment rate, female secondary net enrollment rate, and level of privatization of secondary education are the most influential independent variables. For the male primary net enrollment rate, the female primary net enrollment rate and level of privatization of secondary education are the two of the most influential independent variables. For the female and male secondary net enrollment rates, the enrollment rates of the opposite sex at the same education level are the only most highly significant variables. There is no educational independent variable that affects all the dependent variables in this study.

Different from the effects of the political factors on the rate of child labor and the school enrollment rates, educational variables are much more important for the primary school enrollment rate than for the secondary school enrollment rate comparing the total points. The male primary net enrollment rate has the highest points (29.5 out of 84) and the female primary net enrollment rate has the second highest points (28 out of 84), while the male secondary net enrollment rate has the lowest points (6.5 out of 84). Establishing better educational policies and reforming the education system seem to increase the primary enrollment rate much more than the secondary enrollment rate. In regard with the relationship between the educational variables and the rate of child labor, the higher secondary school enrollment rate and the higher level of urbanization are the only variables that appear to affect the rate of child labor.

Table 27 Summary for the educational variables for child labor and school enrollments

ID	Child labor		Prim Female		Prim Male		Sec Female		Sec Male	
	+/-	point	+/-	point	+/-	point	+/-	point	+/-	point
CompEdPeri		0/12		0/6		0/6		0/6		0/6
PriEdPeri		0/12	+	0.5/6	-	1/6		0/6		0/6
SecEdPeri		0/12	-	4/6	+	3/6	-	2/6		0/6
EduSharePri		0/12	+	0.5/6	-	4/6		0/6		0/6
EduShareSec	-	0.5/12		0/6		0/6		0/6		0/6
NetPriFem		0/6		--	+	6/6		0/3		0/3
NetPriMal		0/6	+	6/6		--	-	2/3	+	0.5/3
NetSecFem	-	6/6	+	3/3		0/3		--	+	6/6
NetSecMal	-	6/6		0/3		0/3	+	6/6		--
PrivatePri		0/12	-	2/6	+	2/6		0/6		0/6
PriateSec		0/12	+	6/6	-	6/6	+	0.5/6		0/6
PubExGDP		0/12	+	2/6	-	4/6		0/6		0/6
PubExGovt		0/12		0/6	+	0.5/6		0/6		0/6
TeaPupPri		0/12	-	3/6	+	3/6	-	2/6		0/6
TeaPupSec		0/12	-	1/6		0/6		0/6		0/6
Urbanization	-	12/12		0/6		0/6	+	2/6		0/6
Total		24.5/168 (0.146)		28/84 (0.333)		29.5/84 (0.351)		14.5/84 (0.173)		6.5/84 (0.077)

Note: Left number is the actual points each variables score and right number is the full points when the variable is significant at the one percent level for all models.
Rates for the total actual points to the total full points are in the parenthesis.

4.6.4 Summary for the socio-cultural variables

The level of ethnic fractionalization shows very high significant effects as a rate-decreasing factor on the female primary net enrollment rate (6/6) and some significance also as a rate-decreasing factor on the female secondary net enrollment rate (4/6). This implies that female students are much more disadvantageous for the access to formal education than male students. The level of female labor force in the economy appears to be highly significant as a rate-increasing factor for both female and male secondary net enrollment rates (6/6 for female and 5/6 for male). Regional variable shows very high significance on the rate of child labor (6/6) and some significance on the female and male secondary net enrollment rates (4/6). African region is the most disadvantageous for both rates. The female literacy rate shows very high significance as a rate-decreasing factor on the rate of child labor (3/3) and as a rate-increasing factor for the female primary net enrollment rate (3/3) and some significance as a rate increasing factor for the male primary and secondary net enrollment rates (2/3). The male literacy rate shows very high significance as a rate-decreasing factor for the rate of child labor (3/3) and as a rate-increasing factor for the female and male primary net enrollment rates (3/3). The percentage of women in the parliament shows some significant effects as a rate-increasing factor on the female primary net enrollment rate (4/6). The level of urbanization is highly significant as a rate-decreasing factor for the rate of child labor (6/6) and as a rate-increasing factor for all the school enrollment rates (6/6). All the religious variables turn to be least significant.

For the rate of child labor, regional variable, the female and male literacy rates, and level of urbanization are the most significant independent variables. For the female primary net enrollment rate, the level of ethnic fractionalization, female and male literacy rates, and level of

urbanization are most significantly influential.[33] For the male primary net enrollment rate, the male literacy rates and level of urbanization are the most significantly influential independent variables. For both female and male secondary net enrollment rates, the level of female labor force in the economy, and level of urbanization are the most significant influential variables.

The cumulative total scores for the socio-cultural variables fall within a relatively smaller range than the economic, educational and political variables. That is, socio-cultural variables have a relatively more consistent and universal impact on all of the dependent variables. The female primary net enrollment rate has the highest total score and primary male enrollment have the lowest total score. Variables that measure cultural openness toward women show overall positive effects on the rate of child labor and school enrollment rates regardless of sex.

[33] This result may help explain why the first phase of the EFA (Education for All) with its policies aiming at providing primary education to all children were fairly successful by focusing on improving educational sector.

Table 28 Summary for the socio-cultural variables for child labor and school enrollments

ID	Child labor		Prim Female		Prim Male		Sec Female		Sec Male	
	+/-	point	+/-	point	+/-	point	+/-	point	+/-	point
EthFra		0/6	-	6/6	-	3/6	-	4/6	-	1/6
FemLabor	+	2.5/6		0/6		0/6	+	6/6	+	5/6
Region		6/6		3/6		1.5/6		4/6		4/6
FemLiteracy	-	3/3	+	3/3	+	2/3	+	1/3	+	2/3
MalLiteracy	-	3/3	+	3/3	+	3/3		0/3	+	0.5/3
NWP		0/6	+	4/6	+	1/6	+	1/6	+	0.5/3
RelCath		0/6		0/6		0/6		0/6		0/6
RelMus		0/6	-	1.5/6	-	0.5/6		0/6		0/6
RelFra		0/6		0/6		0/6		0/6		0/6
RelPro	-	1/6		0/6		0/6		0/6		0/6
Urban	-	6/6	+	6/6	+	6/6	+	6/6	+	6/6
Total		21.5/60 (0.358)		26.5/60 (0.442)		17/60 (0.283)		22/60 (0.367)		19/60 (0.317)
1 (Africa)		most						least		least
2 (Asia)				most		most				
3 (Latin)										
4 (Middle East)		least						most		most
5 (Europe)				least		least				

Note: Left number is the actual points each variables score and right number is the full points when the variable is significant at the one percent level for all models.
Rates for the total actual points to the total full points are in the parenthesis.

4.6.5 Comparison of cross-listed variables

There are six cross-listed variables. It is important to investigate the effects of those cross-listed variables since they might show contradicted effects when being categorized in different factors (economic, political, educational, and socio-cultural). The six variables are the percentage for female labor force in the economy, the female and male literacy rates, the fertility rate, the percentage of women in the parliament, and the level of urbanization. The comparison is shown in the Table 29.

The percentage of female labor force in the economy shows the highest significance with full points for all the rates in the economic analysis, while it shows some significance with 2.5 points out of 6 for the rate of child labor, no significance for the female and male primary net enrollment rates, and very high significance for the female and male secondary net enrollment rates in the socio-cultural analysis. In both analyses, there is no contradiction for the directions (+/- signs) of estimates; the higher percentage of female labor force in the economy is associated with the higher rate of child labor and the higher secondary school enrollment rate in both economic and political analysis, and it is also associated with the lower primary school enrollment rate only in the economic analysis.

The female literacy rate appears to be the most highly influential in the socio-cultural analysis, while it shows little effects in the political analysis. In all the analyses, there is no contradiction for the directions (+/- signs) of estimates. The higher female literacy rate is associated with the lower rate of child labor and the higher school enrollment rate. The male literacy rates seem to have similar effects to the female literacy rate with no contradiction for the direction of estimates.

The fertility rate shows very high significance in both economic and political analyses. The directions of the estimate are not contradicted in both analyses. The high fertility rate is associated with the higher rate of child labor and the lower school enrollment rate.

The significance level of the percentage of women in the parliament is not very high in both political and socio-cultural analyses. For the secondary male enrollment rate, the directions of the estimates are opposite. The higher percentage of women in the parliament appears to be associated with the lower school enrollment rate in the political analysis, while it appears to be associated with the higher school enrollment rate in the socio-cultural analysis. It needs further research.

The effects of the level of urbanization are most significant in the socio-cultural analysis. In addition, it is highly significant with full points for the rate of child labor in all analyses. Also, it appears to be a more important variable to explain the secondary school enrollment rate than the primary school enrollment rate based on the results obtained. The directions of the estimate are not contradicted in all analyses. The higher level of urbanization is associated with the lower rate of child labor and the higher school enrollment rates at both levels of education.

Table 29 Effects of cross-listed variables

Variables	Factors		Child Labor		Prim Fem		Prim Male		Sec Fem		Sec Male
FemLabor	Economic	+	12/12	-	12/12	-	12/12	+	12/12	+	12/12
	Socio-cultural	+	2.5/6		0/6		0/6	+	6/6	+	5/6
FemLiteracy	Economic	-	6/6	+	6/6	+	2/6		0/6		0/6
	Political		0/6		0/6		0/6	+	0.5/6		0/6
	Socio-cultural	-	3/3	+	3/3	+	2/3	+	1/3	+	2/3
MalLiteracy	Economic	-	6/6	+	6/6	+	2.5/6		0/6		0/6
	Political		0/6	+	1.5/6		0/6		0/6		0/6
	Socio-cultural	-	3/3	+	3/3	+	3/3		0/3	+	0.5/3
Fertility	Economic	+	12/12	-	12/12	-	12/12	-	9/12		0/12
	Political	+	12/12	-	12/12	-	12/12	-	12/12	-	11/12
NWP	Political	+	1/12	+	3/12		0/12		0/12	-	3/12
	Socio-cultural		0/6	+	4/6	+	1/6	+	1/6	+	0.5/3
Urbanization	Economic	-	12/12	+	1/12		0/12	+	5/12	+	8/12
	Political	-	12/12		0/12		0/12	+	9/12	+	6.5/12
	Educational	-	12/12		0/6		0/6	+	2/6		0/6
	Socio-cultural	-	6/6	+	6/6	+	6/6	+	6/6	+	6/6

Note: Left number is the actual points each variables score and right number is the full points when the variable is significant at the one percent level for all models.

4.6.6 Ranking of rates

This subsection is used to answer the Question 6. Table 29 shows the ranking of the rates (the rate of child labor, the female and male primary net enrollment rates, and the female and male secondary net enrollment rates) using the total points for each factor (economic, political, educational and socio-cultural).

The economic factor appears to be most influential to the rate of child labor with 10 significant variables. Among the school enrollment rates, the male secondary net enrollment rate appears to be most influenced by the economic factor, implying that the male secondary net enrollment rate is most sensitive to the changes in national economic development. This may be because this population is the one that could most contribute to the national economy as a human resource. The male primary net enrollment rate appears to be least influenced by the economic factor. This implies that the male primary net enrollment rate is most stable to the changes in national economic development, which seems to be because male primary education is the most widespread worldwide. The female primary net enrollment rate is more affected than the female secondary net enrollment rate. This may be because primary education is the most fundamental education for children followed by secondary education. As discussed, secondary education still being a luxury good in many less-developed countries, secondary education for females seems to be a significant luxury good for families. It seems that sending female children to secondary schools is, therefore, still too expensive for many families to afford in many less-developed countries. Thus, economic stimulation itself may not be enough to increase the secondary school enrollment rate, especially the female secondary net enrollment rates.

The political factor appears to be highly significant for the female and male secondary net enrollment rates, while it seems to have low-level significance for the female and male primary enrollment rates. The probability that improving the political situation of a country would increase the female and male secondary enrollment rates is much higher than that for the female and male primary net enrollment rates. This result may also show that the primary education system has been better established and better managed than the secondary education system in many countries. This is reasonable since primary education is the most fundamental education and has been paid attention longer. The male primary enrollment rate is most stable to the changes in the political variables with the lowest points just like that in economic analysis.

The educational factor, instead, appears to be highly significant for the female and male primary net enrollment rates, while it seems to have low-level significance for the female and male secondary enrollment rates and the rate of child labor. The probability that improving the educational sector of a country seems to increase the female and male primary net enrollment rates is much higher than that for the female and male secondary net enrollment rates and the rate of child labor. Except for the female primary net enrollment rate being ranked in the first place in the socio-cultural analysis, both female and male primary net enrollment rates are ranked fairly low in other analysis than the educational analysis. This may imply that primary education is already and most widely accepted, especially for males. Thus, only improving educational sphere, by establishing more effective policies and reforming the educational systems at both education levels, could effectively increase the primary school enrollment rate. In regard with the relationship between the educational variables and the rate of child labor, it appears that the educational variables do not have strong effects on the rate of child labor. Investing in the educational sector seems not to have a direct strong influence to the rate of child labor. In

addition, investing in the educational sector appears not to have strong effects on increasing the secondary school enrollment rate, although increasing the secondary school enrollment rate appears to have much stronger impacts on reducing the rate of child labor than increasing the primary school enrollment rate based on the results obtained. Moreover, increasing the primary school enrollment rate by improving the educational spheres may not have strong effects on the rate of child labor.[34] Therefore, investing in the educational sector may not to be very effective to reduce the rate of child labor even indirectly.

The socio-cultural factor is more significant for the female enrollment rates than for the male enrollment rates at both levels of education, although the difference of the significant level is not as wide as that for the political and educational factors. This may be because girls, in general, are still more disadvantageous in terms of access to formal education due to the traditional and social norms, roles, meanings, and images that attached to girls and women. There is a very small gap of the scores between the female secondary net enrollment rate and the rate of child labor. The rate of child labor, even though being ranked in the third place, seems to be highly affected by the socio-cultural factor. Just like the cultural influence to girls, traditional and social meanings and roles attached to children shared in a certain group, community, region, and so on, seems to affect their life style and educational attainment.

[34] The analysis testing correlation between the rate of child labor and school enrollment rates shows the statistical significance of primary school enrollment rates for the rate of child labor. However, educational analysis shows no effects of primary school enrollment rates on the rate of child labor, while it shows strong statistical significance of secondary school enrollment rates on the rate of child labor. Therefore, effects of primary school enrollment rates on the rate of child labor seem to be unclear in my study.

Table 30 Ranking table

	Economic	Political	Educational	Socio-cultural
1	Child labor (10) 0.426	Secondary female (7) 0.329	Primary male (9) 0.351	Primary female (7) 0.442
2	Secondary male (6) 0.357	Secondary male (5) 0.308	Primary female (10) 0.333	Secondary female (6) 0.367
3	Primary female (9) 0.313	Child labor (5) 0.25	Secondary female (6) 0.173	Child labor (6) 0.358
4	Secondary female (8) 0.262	Primary female (4) 0.142	Child labor (4) 0.146	Secondary male (7) 0.317
5	Primary male (6) 0.226	Primary male (1) 0.1	Secondary male (2) 0.077	Primary male (7) 0.283

Note: Left number is the actual points each variables score and right number is the full points when the variable is significant at the one percent level for all models.
Rates for the total actual points to the total full points are in the second row.
Number in parenthesis is the variable number that shows significance.

5.0 CONCLUSION AND POLICY IMPLICATIONS

This study has investigated national characteristics that are related to prevalence of child labor and low school enrollments from 1990 to 2003, along with six main questions: 1) Is there any relationship between school enrollment rates and the rate of child labor?, 2) What country characteristics can explain the prevalence of child labor and low school enrollment rates?, 3) Does the level of government expenditure on primary and secondary education affect the rate of child labor and/or primary and secondary school enrollment rates?, 4) Are there any similarities and differences of national characteristics that affect school enrollment rates between primary and secondary levels?, 5) Are there any similarities and differences of national characteristics that affect school enrollment rates between females and males?, and 6) Which rate is most influenced by these four factors: economic, political, educational or socio-cultural ones among child labor, primary female and male enrollments, secondary female and male enrollments? Based on the results obtained, this chapter explores the application of theories to practice, policy implication for children to be involved more in school and to have recess from worksites, and recommendation for future research.

All four main factors (economic, political, educational, and socio-cultural) show significant effects on both the rate of child labor and primary/secondary school enrollment rates to some extent. I summarize only highly significant variables for each factor in order to draw policy implications. I define variables that score two thirds of the full points as highly

significant variables.

Among economic variables, high employment rates in the industrial sector, high adult literacy rates, a high level of globalization (exports of goods and services, % of GDP), and high level of urbanization are very significant rate-decreasing factors for the rate of child labor. On the other hand, a high level of female labor force in the economy and high fertility rates are two of the very significant rate-increasing factors for the rate of child labor. For primary school enrollment rates, high employment rates in the industrial sector, a high level of female labor force in the economy, and high fertility rates are the very significant rate-decreasing factors, while a high adult literacy rate is a rate-decreasing factor, especially for female enrollment rates. For secondary school enrollment rates, a high level of female labor force in the economy is a very significant rate-decreasing factor. High fertility rates are a significant rate-decreasing factor for female enrollment. High employment rates in the agricultural sector, high levels of foreign direct investment, large GDP per capita, and high levels of urbanization are significant rate-increasing factors for male enrollment.

Among political variables, high fertility rates are a significant rate-increasing factor on the rate of child labor, while high levels of urbanization are a significant rate-decreasing factor. For primary school enrollment rates, high fertility rates are a significant rate-decreasing factor. There is no other very significant variable either as a rate-increasing or rate-decreasing factor for primary enrollment rates. For secondary school enrollment rates, high fertility rates are a significant rate-decreasing factor. High levels of government effectiveness and high levels of urbanization are significant rate-increasing factor for female enrollment rates.

Among educational variables, high secondary school enrollment rates and high levels of urbanization are significant rate-decreasing factors for the rate of child labor. For primary school

enrollment rates, high primary enrollment rates of opposite sexes are a significant rate-increasing factor. A high level of budgetary share for secondary education is a significant rate-decreasing factor for female enrollment rates, while high female secondary net enrollment rates and a high level of privatization of secondary education are significant rate-increasing factors for female enrollment rates. A high level of budgetary share for secondary education is a significant rate-decreasing factor for male enrollment rates, while a high level of privatization of secondary education and high level of public expenditure on education as a % of GDP are significant rate-decreasing factors. For secondary school enrollment rates, high secondary school enrollment rates of opposite sexes are a significant rate-increasing factor. There is no other significant factor for secondary school enrollment rates.

Among socio-cultural variables, high adult literacy rates and high levels of urbanization are significant rate-decreasing factors for the rate of child labor. Regional variables are significant, Middle East being the most advantageous factor and African being the least advantageous. For primary school enrollment rates, adult literacy rates are a significant rate-increasing factor. Regional variables are significant, Asia being most advantageous and Europe being least advantageous.[35] High percentages of women in the parliament are a significant rate-increasing factor for female enrollment rates, while high levels of ethnic fractionalization is a significant rate-decreasing factor for female enrollment rates. For secondary school enrollment rates, high level of female labor force in the economy and high levels of urbanization are significant rate-increasing factors. Regional variables are significant, the Middle East being most advantageous and Africa being least advantageous. High levels of ethnic fractionalization are a significant variable as a rate-decreasing factor for female enrollment rates. High female

[35] As explained in the former discussion, the reason for Europe being least advantageous for primary enrollment rates seems to be due to the sample-country selection procedure.

literacy rates are a significant variable as a rate-increasing factor for male enrollment rates.

5.1 APPLYING THEORIES TO THE RESULTS

The results obtained in my study are analyzed with institutionalist development theories and human capital theories in this section.

5.1.1 Discussion based on the institutionalist development theories

The prevalence of child labor and low school enrollment rates are two of the typical and major disturbing factors of national development in many less-developed countries mainly by damaging and reducing the future human capital. Thus, reducing/eliminating child labor and increasing school enrollments are critically important for facilitating the national development in the long run. Institutional development theorists suggest that improving not only economic, but also political, social, and cultural situations are necessary for national development through "better education, health, motivation, and better political and social organizations" (Myrdal, 1956, p.13) although many tend to focus on economic development. The results of the study seem to supports the institutional development theories in many ways.

Firstly, as many institutionalists clam, my results, by showing the significant effects of socio-cultural factors on the rate of child labor and school enrollment rates, support the idea that there is a strong cultural influence on national development (Dugger, 1987) as well as economic and political influences. There has been little study done to investigate the cultural influence on child labor and school enrollments, but my study shows the existence of cultural influence on child labor and school enrollments. For example, the significance of regional variables for both

the rate of child labor and school enrollment rates seem to show there are regionally-shared cultures, values, social norms, and traditions which influence these rates. A higher level of ethnic fractionalization that negatively influences school enrollment rates seems not only to reduce effectiveness and efficiency of the governance (Annet, 2001), but also to increase prejudice and discrimination toward specific ethnicity. In addition, two of the most significant variables for the rate of child labor and primary/secondary school enrollment rates, adult literacy rates and the level of urbanization, help to confirm the existence of cultural influence. From the socio-cultural perspective, higher rates of these two variables appear to contribute to decreasing the rate of child labor and increasing school enrollment rates by lessening the impacts of traditional culture and social norms that may negatively influence child labor and school enrollment in the process of people's educational decision making. Countries with high the rate of child labor and/or low school enrollment rates are countries with low adult literacy rates and low levels of urbanization. Therefore, my study suggests that cultural influence is as an important factor as other economic and political factors to consider in order to facilitate national development, and it should not be ignored from the discussion, which seems to often happen in reality.

Secondly, the importance of states as key agencies for national development seems to be indicated by the results. Institutional development theorists advocate the critical role that state governments could and must play to facilitate national development because they firmly believe that effective, efficient and stable political institutions are necessary as well as strong economic institutions for national development (North, 1990). My results show significant influence of political factors on the rate of child labor and school enrollment rates, especially on secondary school enrollment rates. Improving the effectiveness and efficiency of political institutions

would reduce/eliminate child labor and increase school enrollment. Also, as Chu (2003) suggests, improving political institutions could reduce the influence of informal socio-cultural norms, rules, and traditions that hinder national development (hinder reducing/eliminating child labor and increasing school enrollments), whose impacts are exhibited in my study, by enforcing adequate, effective formal rules, regulations, and restrictions.

Lastly and most importantly, my study shows that economic, political, educational, and socio-cultural factors are related to child labor and school enrollment to some extent. Since the issue of child labor and schooling are strongly related to national development, it can be inferred that not only economic but also political, educational, and socio-cultural factors are related to national development, as institutional development theorists claim, based on the results of my study. Therefore, it is necessary to improve all the economic, political, educational, and socio-cultural factors in order to reduce/eliminate child labor and increase school enrollment rates both of which contribute to national development. As Wilson (1999) states, investments in physical capital, technology, and labor are necessary but insufficient to reduce problems that many less-developed countries face such as prevalence of child labor and low school enrollment rates as I show in this study. Improving political, educational, and socio-cultural institutions are as important as improving economic institutions. My study, however, also shows that different factors/institutions (economic, political, educational, and socio-cultural) have different levels of effect on different rates (the rate of child labor, and primary/secondary female/male rates). Thus, depending on the problems that a country deals with, factors/institutions that have to be focused would be different. For example, primary male enrollment rates are hardly related to political factors but strongly related to educational factors. If a nation wants to improve primary male enrollment rates, it has to focus more on the educational sector and educational policies.

Although economic development tends to be highly valued for a country to be developed, my study has explored and suggested that developing and improving other factors, such as political and socio-cultural ones, are as important for national development as economic development. As institutional development theorists explain, if less-developed countries are not taking right strategies toward national development economically and socially, effective political interventions are necessary to change the direction of development. My study has suggested what economic, political, educational and socio-cultural factors need to be improved or controlled in order to solve some of the typical problems of less-developed countries; prevalence of child labor, and low school enrollments in order to facilitate national development.

5.1.2 Discussion based on the human capital theories

Educational factors appear to be very important for primary female/male enrollment rates, but not as important for secondary female and male enrollment rates and the rate of child labor. Considering this and strong impacts of economic factors on the rate of child labor, Becker's (1997) discussion about the relationship among education, child labor, and economic development concludes that it is not educational but economic development that reduces and eliminates child labor eventually. The analysis of the relationship between child labor and school enrollment rates shows a significant relationship between the two. Therefore, educational factors may not have very significant effects on the rate of child labor directly, but investments in the educational sector may decrease the rate of child labor indirectly by increasing primary school enrollment rates.

Although investments in the educational sector may not be very important to reduce child labor, the results suggest that investments in the educational sectors is highly important to

increase primary female and male enrollment rates, which increases future human capital for economic development.[36] In addition, adult literacy rates show significant effects not only economically, but also socio-culturally. Having primary education and being literate eventually help to have positive impacts on child labor and school enrollment when children become adults. Those educated adults will be more productive economically. Because they will know the importance of education, they will be better able to make educational decisions for their children without much influence from traditions, social norms, and cultures.

Therefore, as human capital theorists state, investments in the educational sector and increasing school enrollment rates are important for national economic development, which consequently help reduce child labor. My study suggests that education can play a critical role not only to increase human capital but also to decrease child labor.

5.2 POLICY IMPLICATION

This section discusses policy implication for children to be involved more in school and to be withdrawn from worksites from different perspectives.

Overall, the economic and socio-cultural factors appear to be fairly significant for all child labor and primary/secondary female and male enrollment rates, while the political and educational factors are significant for some rates and much less significant for some rates. Thus, depending on the targeting groups, strategies and focuses would be different.

Based on the Table 29, economic stimulation and economic development seems to be most effective in order to reduce the rate of child labor, while educational policy interventions do

[36] This supports the EFA policies.

not have strong impacts on child labor. Effective policies dealing with the issue of child labor should pay more attention to the economic sector than other political, educational, or socio-cultural sectors, although those other sectors should not be neglected. In addition, considering the strong relationship between child labor and secondary school enrollment, policies in order to promote secondary education seems to help reducing child labor as positive externalities.

The socio-cultural and educational factors appear to have outstanding significant effects on female primary enrollment. Therefore, in order to increase female primary enrollment rates effectively and efficiently, national governments should establish policies aiming to reduce negative cultural effects on schooling, and invest in the educational sector in order to improve its quality, quantity and relevance. Improving the political sector, however, seems not to have much effect on increasing female primary enrollment rates.

The male primary enrollment rates are most insensitive to the change in the economic, political, and socio-cultural spheres. This could be also inferred that male primary education is the most stable and accepted formal education in many countries. However, Table 29 shows that investment in the educational sector would most effectively work on the male primary net enrollment rates. Thus, national governments could focus on improving the educational sector if their targeting group is primary male students.

The political factors appear to be most related to the female secondary net enrollment rates, while the educational factors do not appear to be very significant. If a targeting group is secondary female students, improving the political sector would have much more positive effects than investment in the educational sector.

The male secondary net enrollment rate is most sensitive to the economic factors among primary/secondary female and male enrollment rates, implying that the male secondary net

enrollment rate has the highest opportunity costs among school enrollment rates. Policies aiming at economic development and poverty reduction, therefore, seem to be very effective to increase the male secondary net enrollment rate. In addition, the political factors appear to be very significant for the male secondary net enrollment rates as well as for the female secondary net enrollment rate, while the educational factors are least significant for the male secondary net enrollment rate. Just like for the female secondary net enrollment rate, policies aiming at improving the political sector rather than the educational sector would work much better for increasing the male secondary enrollment rates.

The socio-cultural factors have high significant effects on female enrollment rates at both education levels. Girls appear to be much more disadvantageous for schooling due to traditions, social norms, prejudice, and so on. Therefore, policies aiming at reducing those cultural influences are essential in order to promote female education.

Considering the results obtained, several policy recommendations are suggested. First, poverty reduction is very important and have to be achieved by lowering fertility rates, improving income distribution, promoting female employment, and raising adult literacy rates. A high fertility rate is strongly related to the issue of poverty in many less-developed countries. Establishing and effectively implementing public health policies focusing on reducing a fertility rate seem to positively affect to reduce the rate of child labor and increase school enrollment rates. As discussed, GDP per capita itself is not a significant variable for the rate of child labor and primary school enrollment rates even though it is an important variable especially for the male secondary net enrollment rate. Therefore, not only trying to raise GDP per capita but also trying to evenly distribute the national wealth seems essential to reduce the rate of child labor and increase the school enrollment rates by establishing effective programs and projects for

social welfare. Promoting female employment in the economy is necessary in order to make poorer families better off. However, the results show negative influence on the primary school enrollment rates. As discussed, promoting pre-school education is important so that mothers can work without taking their younger children to work with them. Raising adult literacy rates through non-formal adult education is also effective so that their productivity increases.

Secondly, because rural children are much more likely to be in the labor force and to drop out of school, especially at the secondary education level, it seems to be more effective to focus on rural areas by raising adult employment opportunities, increasing industrialization, reforming curriculum to improve educational quality/relevance and reducing socio-cultural effects by awareness-raising campaigns. However, as the result indicates, urbanizing a country by increasing industrialization is likely to have negative effects on school enrollment rates. Therefore, it is important to establish educational policies to keep children within the formal school systems.

Thirdly, it is important to focus on female education. Negative socio-cultural effects on female education have to be controlled through awareness-raising campaigns and the promotion of women's advancement in the economic and political spheres.

Lastly, additional efforts are necessary in order to reduce child labor and promote secondary education in African countries, especially those with French-originated laws. The results show that children living in those countries seem to suffer most from economic, political and socio-cultural disadvantages.

5.3 CONCLUSION: IMPLICATION FOR FUTURE STUDY

My study successfully shows different target groups need different policy interventions in different sectors. Reducing child labor and increasing school enrollment rates effectively and efficiently require in-advance-research about what variables in what sector can bring significant influence. Although my study has found many interesting findings and seems to be useful to improve national and international policies related to child labor and formal schooling, much further research is necessary based on the results obtained and due to the limitation of my study.

Some of the seemingly important variables were omitted from the original plan due to the limited availabilities. Those factors are GINI index, the level of credit constraints, the level of regulatory quality, public expenditure on health, and percentage of trained teachers at the primary and secondary education levels. Those factors would have been expected to have great effects on the rate of child labor and school enrollment rates. Therefore, adequate amount of data for those variables and further research about the effects of those variables are necessary.

My study ignores children who are under ten years old. There are many children who work and/or do not attend schools among this population. The effects of the four factors on these younger children may be different from the effects on the children who my study has dealt with. It is necessary to study the effects of the four factors on child labor and school enrollments among those younger children.

There are some contradicting results and some results that appear to be difficult to explain with existing literature as described. Those results need further research with more comprehensive dataset and to investigate the accuracy of my results.

My study has dealt with the macro data. With macro analysis, there is a limitation of observing small detail characteristics of a country that may affect child labor and school

enrollments. Based on this macro analysis, more detailed and more comprehensive micro-analysis is necessary to understand the unique situation of individual countries in order to establish effective policies.

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