Child Labor: An analysis of its predictors and policies

Darlene Santos, McNair Scholar
The Pennsylvania State University

McNair Faculty Research Advisors:
Dr. Ann Tickamyer, Ph.D
Professor of Rural Sociology
Department Head Agriculture Economics and Rural Sociology
and
Dr. Laurie Scheuble
Senior Lecturer in Sociology
The Pennsylvania University

Abstract

The literature regarding child labor primarily focuses on its relationship with a nation's wealth but rarely analyzes this relationship in conjunction with other population/demographic and opportunity variables. The current study examines the relationship between child labor rates and these three dimensions: economic, population demographic and opportunity variables. A three model linear regression table shows that GDP per capita is a significant indicator for high rates of child labor, as are total fertility rates, percent of women in the labor force, and literacy rates. Two case studies of countries with the highest and lowest rates are individually analyzed.

Introduction

Over 200 million children worldwide are employed in occupations that are exhausting, difficult and, in some cases, dangerous in nature. In families that struggle financially, children oftentimes forego an education in order to help provide an income. Often times, this decision is out of their hands and determined by outside circumstances. Scholarly attention devoted to understanding what child labor is and how to define it directs our attention to considering the practice as complex in nature. What is important for people to understand is the relationship between child labor and poverty. Various authors and critics, such as Eric Edmonds and Nina Pavcnik, suggest a strong correlation between the prevalence of child labor and poverty. Impoverished households will use children to supplement their income (2005). In addition to poverty, these scholars highlight the importance of culture, policies, land ownership and other indicators in the practice of having children in the workforce. My research project will analyze the relationship between a country's Gross Domestic Product (GDP) and rates of child labor. Also, I will be analyzing the relationships between child labor and other predictors in order to understand what influences its occurrence.

Previous studies have examined poverty by analyzing their Gross Domestic Product, a measurement used by nations to define their wealth. This approach defines poverty solely in terms of the amount of a country's economic wealth or lack thereof and can assist in predicting child labor rates in developed and developing countries. However, this measurement is not

sufficient because GDP does not account for how wealth is distributed, an important indicator for why child labor takes place.

I will begin my research project by reviewing research produced by scholars on the issue of child labor. Then, I will analyze what I have learned from the available information and fill in the gaps by critically analyzing different elements of child labor that require empirical support. I will extend this concept to looking at other influences aside from GDP per capita (as it is a more precise measurement of individual salaries within a nation) by analyzing other factors typically attributed to child labor that interconnect with other determinants such as: population size, literacy rates, measurements on the human development index (HDI), average years of schooling, life expectancy, total fertility rates, percentage of people living in rural settings, and percentage of women in the labor force. I will do this by collecting data on the varying determinants across 76 countries (ranging from developing to developed countries). Once I have finished gathering and analyzing data from my cross-sectional study, I will evaluate two case studies of countries with the highest and lowest rates of child labor. Through these case studies, I will evaluate policies implemented in the chosen nations and analyze the differences found among the determinants I am testing.

As a result of my findings, I will have determined whether or not there is a correlation between a country's gross domestic product per capita and its rates of child labor. In addition, I will examine other influential factors and if they turn out to be as significant as or more significant than a country's economic standing.

Defining Child Labor

Child labor has received a substantial amount of attention in fields such as economics, sociology, and political science. Although scholars such as Eric Edmonds (2007) and Kaushik Basu (1998) have attempted to account for why it exists, it is important to identify the various contexts in which the term is used. Within a Western context, the term is associated with images of children toiling away in hazardous conditions harvesting and tending to crops, or in factories (e.g. "sweatshops") for little or no pay. While it is true that the ways in which child labor affects children is the focus of certain studies about child labor policies, other studies attempt to make sense of how these policies define what constitutes "labor." For instance, the International Labor Organization's Convention No. 138 classifies fifteen years as the minimum age which, under regular conditions, an individual may participate in economic activity through various acts of work for pay (ILO, 2011). Economic activity, as we can see through Eric Edmonds and Nina Pavcnik's study "Child Labor in the Global Economy," is not limited to for-profit factory or migrant labor—some policies include the role of family-owned business operations and management in children's economic activities. For instance, they point out that child labor can be defined by whether or not the child "works in family enterprises that are making primary products for the market" (2005, p. 200-201). According to the 2010 "Global Report on Child Labour", the International Labour Conference states that more than 200 million children have to work instead of investing that time and energy into their future (p.1). Given that labor can also include a child's labor activities in the domestic sphere, these policy definitions make it difficult to automatically associate child labor with work outside of the household., especially when a

majority of statistics and surveys do not take domestic work into account as child labor or as a contributor to a country's GDP.

Family Influence

When families are faced with financial struggles, their only means of economic support is to put every able body in the family to work in order to help supply an income. My mom is an example of this. In the Dominican Republic, my mom was employed in a wealthy family's home to babysit the children and perform all of the domestic work at the age of ten because her mom could not be the sole provider. Despite discrepancies in defining exactly what constitutes child labor, "most working children are employed by their parents rather than in manufacturing establishments or other forms of wage employment" (Edmonds & Pavcnik 2005, p. 202). Edmonds and Pavcnik note that cultural norms influence the way parents allot their children's time. In cultures, such as India, where one sex is more valued than the other, investment in that sex is more profitable for the family and the other sex may be more inclined or required to work. For instance, if it is believed that the son will come back to care for the parents, a majority of the family's available resources will be devoted to ensure the son's success in order to secure a future care provider in their old age.

In the book "Child Slavery: A Contemporary Reader", Gary Craig (2010, p. 85) expands on the idea that in many places the use of children as a source of labor is viewed as normal and beneficial to the children and their families. This view is especially true for girls in countries that view women as unequal to men. The futures for girls in this culture consist of holding the roles of mothers and wives one day, catering to their husband s and maintaining their families. These domestic worker roles are considered a suitable occupation due to social restrictions and cultural norms. What this introduces is a depiction of how gender roles and cultural acceptance can impact and reinforce child labor. Furthermore, Kaushik Basu, Sanghamitra Das and Bhaskar Dutta (2007, p. 7) note that the exclusion of domestic work as a measure of child labor grossly underestimates the amount of work girls do in comparison with boys. This cultural disregard of considering domestic work as a form of labor not only undermines the role of females but also ignores the amount of time children invest in performing domestic tasks.

Across family generations, "low educational attainment leads to lower income leads to lower educational investments in the next generation, an educational poverty trap" (Edmonds 2007, p.33). If members of a family are spending their time working instead of improving their economic situation by obtaining more education, then this inevitably leads to a cycle in which long work hours for low pay are foreseeable. The amount of education the parents have can also play a pivotal role in the amount of children they desire. As Doepke and Zilibotti observe in their article "Macroeconomics of Child Labor Regulation", fertility decisions among families vary within numerous political steady states and impact on the number of children per family (2005, p. 1493). Emily Blanchard and Gerald Willmann (2010, p. 3) define political steady states as states that are economically balanced under which the majority will vote to maintain the status quo trade policy. If child labor is banned, Doepke and Zilibotti concluded that young, unskilled workers who haven't decided on size of family yet, have more leeway when it comes to opting for smaller families and educating their children. However, when adults have families, their views on child labor regulation are affected by how many children they have. If child labor is

legal in one steady political state, families are more likely to bear more children. The potential loss of income from their children not participating in the workforce is incredibly severe in families with many children so there is little support for child labor regulations. On the other hand, in the other steady political state where child labor is banned, families are smaller in size and there is a wide range of support for child labor regulations. The combination of a country's economic balance, which can be hinted at by its GDP, and fertility decisions can either positively or negatively impact rates of child labor.

Wealth and Labor

Edmonds and Pavcnik discuss three elements of poverty and their relation to child labor in their article "Child Labor in the Global Economy" which helps us to see the economic aspect of child labor (2005, p. 202) The first facet is that child labor appears to decline as improvement in household living standards improve. Although there may be increased employment opportunities for children, parents will not have to send their children to work if their incomes rise in line with trade. The second facet is that child labor seems to be incredibly sensitive to the family's economic situation. Lack of job opportunities and access to credit impacts the number of children working and their hours. The third and final facet is that poor local institutions related to poverty, such as ineffective or expensive schools, could possibly force children into the labor force.

Since poverty is an important indicator of child labor, Basu, Das and Dutta sought to establish a relationship between land wealth and child labor within families in their paper "Child Labor and Household Wealth: Theory and Empirical Evidence of an Inverted-U". Given that an abundance of literature suggests that the main cause of child labor is poverty, it only seems fitting that with increased land there would be an increase in wealth and therefore a decrease respectively (2005, p. 1). This assumption is sometimes referred to as the 'luxury axiom', which is the notion that land is usually strongly correlated with a household's income. However, Basu et. al's paper discusses how imperfect labor markets may drive families to employ their own children to improve their economic status due to lack of access to nearby job opportunities. The data set used in this paper showed that, "controlling for child, household and village characteristics, the turning point beyond which more land leads to a decline in child labor occurs around 4 acres of land per household" (2005, p. 1). When the household comes to acquire some wealth in the form of land, children will begin to work more because they are able to. Although, beyond the threshold level, households may be financially stable enough to not have to rely on child labor and may do away with it entirely. Nevertheless, increased land ownership and increased wealth will not necessarily reduce the incidence of child labor.

In order to elaborate on the complicated relationship between household wealth and child labor rates, authors of "Combating Child Labor: A review of policies" draw attention to the relatively small impacts income has on child labor (2003, p. 37). They point out that there is substantial support for the idea that landholdings tend to increase the chances that children will work and decrease the chances that they attend school. This refers back to the idea that most children who are employed are often doing domestic work, which is typically not labeled as child labor. However, it is important to understand the roles lack of wealth have as well.

In some instances, the only feasible option is to have children work to help support the livelihood of the family. Myron Weiner, author of "The Child and the State of India", expresses how although some government programs intended to provide methods of generating incomes for the household (like providing families with cattle) result in a need for more domestic work which in turn is likely to increase the need of the family for labor (1991, p. 206). However, what is important is to provide children with various choice sets so that they are not choosing between forfeiting the opportunity to obtain an education to better their circumstances and working to help improve their family's current economic situation.

Conflicting Views on Education

In a majority of cases, apart from the rare instances where parents are abusive on impulse, parents would rather see their child succeed and would only send them to work if they had absolutely no other choice. A majority of literature will look at education as a solution for poverty and an end to child labor. Basu et. al discuss how availability of good schools and simple incentives promoting attendance (such as a meal for the child or some form of payment to parents who have children in school) can help to curb the dependence on child labor (2005, p. 1). Then again, when education is not readily available or easily accessible, options for the child become extremely limited. As noted by Doepke and Zilibotti, an alternative to education consists of child labor and that a common assumption is that working children are competing with unskilled adults in the labor market (2005, p. 1492). However, various authors have come to find that contrary to these assertions that children are used for labor because they perform more efficiently for specialized tasks due to their dexterity and "nimble fingers", it was found that child and adult laborers fare equally in reference to tasks and productivity. Though some children may enter the workforce in the hopes to complement their schooling, most are denied the opportunity to obtain an education and wind up working in horrid conditions (Craig 2010, p. 83).

The decision between whether you send your child to school and struggle financially while doing so, or risking their future by having them forego their education is a daunting one. Though Westerners typically view child labor as an injustice, others see manual labor for children as a method for building character and developing a strong sense of purpose. In the article "Labouring under Illusions", Beatrice Newbery expands on the idea that Western civilizations and 'Third World' attitudes differ in the sense of what they believe roles of children are. For instance, she presents the concept that in the Ladakhi culture, children were considered a vital part of working in the fields and were taught valuable skills such as storing and planting crops. Currently, students are being removed from the fields and placed in classrooms as a means of advancement. Helena Norberg-Hodge, director of the International Society for Ecology and Culture, further expresses that "there is a blanket assumption that wherever children work, it is an abuse," she says. "But working with the family and community helps to share their identity, gives them a vital role in life and a feeling of responsibility and belonging" (2000, p. 20). However, children are beginning to lose their knowledge of agriculture and replacing that knowledge with maths, geography and English instead.

In this culture, the 'Victorian' style of education resulted in a failure rate of 95% for students as it did not provide students with education that would be useful in their current

circumstances. The message they receive from school is that they should be dissatisfied with their lives and their traditional lifestyle because their education tells them that they live in squalor. This provides insight as to why many parents consider education as useless when their children are losing their traditional skills which will furthermore interfere with future agriculture systems that are central to rural communities. Their argument is that the 'Victorian' education (as they like to refer to it) fails to take into account what daily life is like in rural villages and the necessary trades that are essential to survive.

Despite the argument Newbery presents, Weiner's study in the book "The child and the state in India" proposes that during a time where India had no compulsory education and when child labor was not illegal, they became the world's largest producers of illiterates (1991, pg. 3). Less than half of India's children between the ages of six and fourteen were not in school at the time of the study, having equated to about 82 million children. Most children who started school dropped out and of those who entered the first grade, only four out of ten completed four years of school. This lack of education ultimately deprives students of the possibility of being employed in the service sector or obtaining a white-collar job position as technological advancements are calling for a more skilled and educated workforce (1991, pg. 205). As noted by Weiner, there has been a plethora of underdeveloped nations that have employed mass education and compulsory attendance in the face of poverty. Weiner's analysis of India's low per capita income and economic situation indicates that belief systems of the state bureaucracy play a more vital role in child labor rates than previously believed. Weiner then delves into describing that these belief systems are:

> "a set of beliefs that are widely shared by educators, social activists, trade unionists, academic researchers, more broadly, by members of the Indian middle class. At the core of these beliefs are the Indian view of the social order, notions concerning the respective roles of upper and lower social strata, the role of education as a means of maintaining differentiations among social classes, and concerns that "excessive" and "inappropriate" education for the poor would disrupt existing social arrangements" (1991, p. 5).

Both arguments address the fact that we cannot simply look at education as a solution when we do not have an understanding of the deeper problems that are contributing to child labor. An obvious indicator involves economic inequalities in the global economy, but we must further inquire about Western conventions regarding the value systems and lifestyles of other societies. Moreover, it is important to analyze the standard conceptions of education that progressively permeate around the globe.

Data and Policies

Dan Rees, manager of the Ethical Trading Initiative explains that "child labor arouses more emotion in people than any other issue we deal with" (Newbery 2000, p. 18). Various aid agencies and Western nongovernmental agencies have established a mission to ensure that child labor is widely prohibited. According to the report "Global Report on Child Labor 2010", the International Labor Organization, has a strong focus on working to eliminate the use of child labor and has become the world's most important source for child-labor related statistical

information (p. 5). Established in 1998, the Statistical Information and Monitoring Programme on Child Labor has enabled the ILO to support over 300 child labor surveys. These surveys are necessary to develop sufficient data on the issue, its magnitude and how to formulate a plan to combat it. The possibility of developing surveys has also allowed the ILO to form stronger connections with crucial partners such as the interagency Understanding Children's Work programme. This program was launched in 2000 in association with the World Bank and UNICEF, strengthening the ability to collect and analyze data considerably.

Obtaining data on the matter of child labor is possible through national household surveys. Surveys conducted from the timeframe of 2004-2008 helped to create about 60 national data sets for the 2010 round of global estimation of child labor by the ILO (Global report on Child Labor 2010, p. 13). Data were obtained from over 50 countries and aided in developing multiple data sets across a spectrum of years. One example of a household survey is provided by the article "Child Labor and the Transition between School and Work". Akee et. al developed a survey method in which children were involved in a game used to measure their time allocation between school, work and leisure activities (2010, p. 136). The child is asked to choose ten cards among three different sets of colored cards in order to select cards that correspond to their week's activity. This game resulted in the knowledge that parents, who are largely responsible for determining how children spend their time, tended to over-report their children's leisure time in comparison with their own children's response. Results from household surveys are necessary in determining the frequency and severity of the issue and developing policies to handle it.

One of the earliest pieces of legislation developed as a means to prohibit child labor was the labor law put into place by the state of Massachusetts in 1837 (Basu 2005, p. 1091). This law forbade firms from employing children under the age of fifteen years who had not attended school for 3 months, at the very minimum. From the time period 1880 to 1910, rates of child labor dropped dramatically, due largely in part to activism against the matter (Basu 2005, p 1090). In 1900, twelve states set an age limit of fourteen years for employment in manufacturing. Ten years later, thirty-two states had implemented similar restrictive laws. The relationship between the decrease in child labor rates and the introduction of policies reinforces the notion that legislation can have an impact. In this article, Basu compares intra-national efforts and supra-national efforts in order to determine which is more effective in curbing child labor rates. Intra-national efforts consist of laws ratified by the country and methods of prevention and intervention within a single national boundary. An example of an intra-national effort would be the Massachusetts law enacted in 1837. Supra-national efforts are more complex and are performed through international organizations such as UNICEF, the World Trade Organization and the International Labor Organization. Their interventions involve persuading nations to abide by established conventions and employ them within their own boundaries (2005, p. 1092).

An example of a powerful mechanism utilized to control child labor would be international labor standards, which are minimal rules, standards and conditions of labor that countries must abide or they are liable to face disciplinary actions, such as the imposition of trade sanctions. Even though the International Labor Organization has placed child labor on the national agenda for numerous countries, an analysis of national laws established in 65 countries, showed a mere 19 have specific laws regulating child labor. Author Gary Craig argues that "specific local regulation and enforcement remains almost non-existent because of a perceived conflict of interest with regard to privacy laws, inherent difficulties in regulating informal sector

activities, backed up by continuing societal assumptions that children are well protected in private households" (2010, p. 87). Both measures, intra-national and supra-national, are effective to some degree, but what is important is determining whether they are more effective when they are both enacted or if one is more efficient than the other. While it is unclear which type of policy is essential for change, what is certain is that something must be done.

Reprimanding Countries

When countries do not abide by international labor standards, punitive measures can include trade sanctions. The article "Child Labor" describes the methods the United States take when dealing with other countries importing goods into the U.S. using child labor (2007, p. 22). The U.S. House of Representatives deliberated on the "Child Labor Elimination Act which would impose general trade sanctions and deny financial assistance to countries with elevated occurrences of child labor. Not only can legislation impact trade sanctions between countries, but boycotts can be a very powerful influence as well. Newbery analyzed this observation in her article "Labouring Under Illusions" when she observed the impact the threat of a 1994 U.S. boycott against Bangladeshi garment factories with children employed (p. 19). As these factories did not want to lose business and were afraid of the repercussions they could potentially face, they fired over 10,000 Bangladeshi child workers, most of whom were girls. This resulted in a shift of working in a garment factory to being employed in more hazardous work such as brick breaking, begging or even prostitution. Policy and research adviser Rachel Marcus emphasized in this article that "those who initiated the boycott believed they were combating an abuse of human rights. In Bangladesh, it was viewed as a case of Westerners selectively applying universal principles to a situation they did not understand" (Newbery 2000, p. 19). According to the paper "Is Product Boycott a Good Idea for Controlling Child Labor? A Theoretical Investigation", Basu examines the impact of boycotts of child labor tainted products and how the boycotts can actually result in a rise in child labor which is known as the 'adverse reaction proposition' (2005, p. 3). Trade sanctions have the potential to reduce family income and force families to make their children work other types of jobs that are more threatening to their well-being.

Solution?

Although boycotts and trade sanctions could produce negative effects, one thing that these efforts against child labor can agree on is that elimination of child labor is the ultimate goal. The 2010 "Global Report on Child Labor" clarifies that in 2000, the International Labor Organization's Convention No. 138 was put into action to eliminate the worst and most detrimental forms of child labor by the year 2016 (p. 6). The 2006 Global Action Plan calls for "mainstreaming child labor concerns in national development and policy frameworks, the development of knowledge, tools and capacity, and resource mobilization" (p. 19). Policies developed to combat child labor are incredibly idealistic in theory; however, there are some limitations that could hinder achievement of their purpose. Edmonds and Pavcnik discuss how policies that might keep children from working in one type of job might actually push them to another job that is more hazardous in nature. Policies that focus on banning child labor or requiring that children attend school are difficult to enforce and do not necessarily guarantee that local labor markets will be positively affected in a manner that will raise average family income

(p. 216). In the article "Labouring Under Illusions", Khalid Hussein, a young child laborer, was interviewed and asked about whether it was his choice to work and if he liked doing so. He replied "I stitch one football per day after school. Most of the people in my village stitch footballs. If there was a ban on child labor, most of the people in my village would go hungry (Newbery 2000, p. 18). Hussein sees his choice set as working and going to school or going hungry. However, if policies were directed at improving school infrastructure, reducing the cost of schooling and improving the income of parents so that children would not have to work, then incidences of child labor would decrease significantly.

Developing nations battling with the dilemma of child labor, poverty and an absence of education can look to Kerala as an example of how to improve educational infrastructures and the lives of countless children. In her book *The Elimination of Child Labor: Whose Responsibility?*, Pramila Bhargava states that Kerala, an Indian state, spends more on education than any other state government (2003, p. 25). Every child is enrolled in primary schools as their resources are dedicated to spreading mass education as opposed to higher education. Some policies they have implemented include land reforms and raising minimum wage so that parents are not dependent on the support of their children's labor. Though Kerala can serve as a model for other countries to follow, this is not to say that higher spending on education is the singular solution for ending child labor. As the authors of *Combating Child Labor: A review of policies* state, "appropriate response to combat child labor depends on the nature of the problem and on the country's administrative and institutional framework as well as the commitment and enforcement capacity of governments to combat it" (2003, pg. 37).

Conclusion

There is a vast amount of literature available on the correlation between child labor and poverty as its main predictor. However, there are gaps in research as poverty is largely discussed as economic wealth but other variables are rarely mentioned as playing propagating roles. In addition, the best solution for a country's child labor rate has not been determined to be either an intra-national effort or a supra-national effort. Is it better to hold a country liable by punishing them with trade sanctions or are establishing programs aimed at improving the infrastructure of educational systems and raising incomes more effective in the long run? In my research, I will discuss different variables and factors that may play a role in high child labor rates. Also, I will evaluate various indicators, such as the gender inequality index which is used to measure cultural values about the status of women, and policies across varying nations towards child labor to assess whether or not that plays a role in their conformity and obedience to international standards. Furthermore, I will analyze policies' success rates through various case studies and determine what may be the best route for curbing child labor rates.

Theory

I am examining the predictors of child labor in 76 countries. I expect that structural variables will influence rates of child labor. Since research suggests that poverty is strongly correlated with high rates of child labor, my hypothesis is that countries with higher levels of

Gross Domestic Product per capita (GDP per capita) will be more likely to have lower levels of child labor than those with lower GDP per capita. In addition, I will further examine other potentially influential variables to determine whether their relationships with child labor rates are stronger than the relationship with GDP per capita or if they modify that relationship. I will measure these variables in three different categories: economic variables, population/demographic variables, and opportunity variables. For the economic variable, I hypothesize that countries with a higher GDP per capita will result in lower child labor rates. For the population/demographic variables, I hypothesize that countries with a greater population size will result in higher child labor rates because with a bigger population, there is a larger pool of potential workers and a larger population that needs to be tended to. Also, countries with a greater percentage of its population residing in rural settings will have higher percentages of children in the workforce. I expect that countries that measure higher on the Human Development Index (HDI), have a lower fertility rate, and a higher life expectancy will consequently result in low child labor rates. In response to the opportunity variables, I predict that countries with lower literacy rates and a lower number of average years of schooling will have higher child labor rates. In contrast, I hypothesize that countries with a higher percentage of women in the labor force will result in a lower percentage of children working as there won't be a need for their labor. A thorough analysis of the relationship between child labor rates and the variables I am testing for will provide insight on indicators of the issue.

Method

The research design I will use is a secondary quantitative data analysis of child labor in 76 countries. The data were obtained from sources such as the International Labor Organization (2011), the World Bank (2011) and the United Nations Development Programme (2010). I will supplement my findings with two case studies examining policies and preventative measures in place and evaluate the impacts these policies have on child labor rates.

The variables I will be analyzing consist of countries' gross domestic product per capita, the percentages of girls and boys working, literacy rates, total fertility rates, measures of the human development index (HDI), percentages of population living in rural and urban settings, life expectancy rates, and percentages of woman in the labor force. Gross Domestic Product (GDP) per capita is gross domestic product divided by midyear population (World Bank, 2011). Literacy rates are the percentages of people ages 15 and above who can, with understanding, read and write a short, simple statement on their everyday life. Total fertility rate (TFR) represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates. The final variable I will measure is the HDI, a summary measure of human development. It measures the average achievements in a country in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living (Human Development Report, 2010).

I will conduct a bivariate analysis of the relationship between the predictors (independent variables) and child labor rates (dependent variables) of each country. I will also be looking at the percentages of boys and girls working separately as in my literature review, I note that cultural attitudes influence investment in one sex. For instance, if boys are more valued in a

nation, then there will be a greater investment in education for boys, thus affecting the percentages of boys working. Finally, I will conduct a multiple regression analysis in order to determine if a country's Gross Domestic Product influences child labor and if there is still significant correlation once other variables are introduced.

Findings

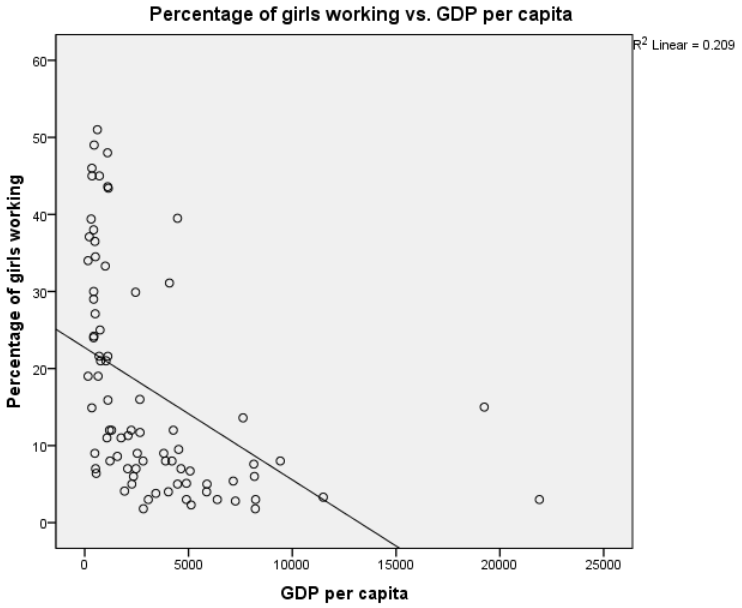
Quantitative Analysis

Table 1a (refer to the appendix) illustrates the correlations between the percentage of girls working and the other variables included in the model. GDP per capita divided by 1000, literacy rates, percent of population in rural settings, total fertility rate, life expectancy, and percent of women in the labor force all were highly correlated with percentage of girls working ($p<.001$). Population size and average years of schooling did not have a significant correlation with the percentage of girls working. As HDI measured average years of schooling and life expectancy, it was removed as a predictor variable since it measured variables already accounted for.

Table 1b (refer to the appendix) illustrates the correlations between the percentage of boys working and the other variables tested against it. Literacy rates, the human development index, percent of population in rural settings, total fertility rate, life expectancy, and percent of women in the labor force all were significantly correlated with percentage of boys working ($p<.001$). GDP per capita was shown to be correlated with boys working at the $p<.01$ level. Population size and average years of schooling did not have a significant correlation with the percentage of boys working. Table 1c (refer to the appendix) contains the descriptive statistics for the dependent and independent variables. The table indicates that the percentage of boys working (20%) is a little higher than the percentage of girls working (17%)

Figure 1 presents the relationship between GDP per capita and the percentage of girls working. Figure 1 displays a negative relationship between the two variables. GDP per capita is listed along the x-axis and percentage of girls working is located along the y-axis. The negative relationship indicates that as GDP per capita increases, the percentage of girls working decreases.

Figure 1. Percentage of girls working vs. GDP per capita



The relationship between GDP per capita and the percentage of boys working is presented in Figure 2. This bivariate presentation shows a negative relationship between the two variables. GDP per capita is listed along the x-axis and percentage of boys working is located along the y-axis. The negative relationship indicates that as GDP per capita increases, the percentage of boys working decreases. This is the same pattern as found with GDP and percent of girls working; however, it is apparent that the correlation is much higher for girls than boys. This can confirm the idea that when one sex is valued over the other, more time, energy and investment in education will be awarded to that particular sex.

Figure 2. Percentage of boys working vs. GDP per capita

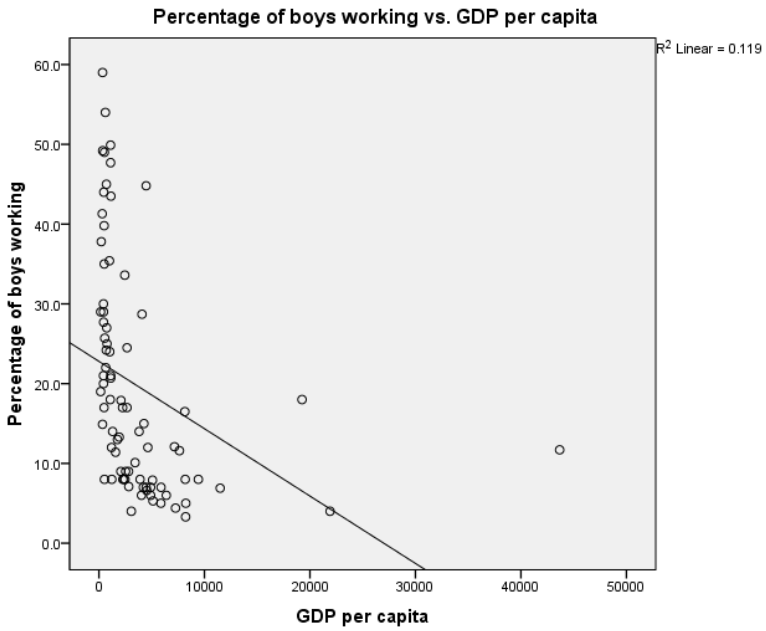


Table 2 presents the regression of the dependent variable, percentage of girls working, on the independent and control variables. However, the variable HDI was removed from the regression model as it measures life expectancy and average years of schooling, variables that are already being measured. Model 1 includes the economic variable Gross Domestic Product per capita which is significant ($p<.001$). The relationship between GDP per capita and the percentage of girls working is negative; as GDP per capita increases, the percentage of girls

working decreases. Model 2 includes population demographic variables. In this model, the variable total fertility rate is the only significant variable (p<.05). The positive relationship between these variables shows that as total fertility rate increases, the percentage of girls working increases. Model 3 includes opportunity variables. The only significant variable is percent of women in the workforce (p<.01). The positive relationship between both variables indicates that as the percent of women in the workforce increased, the percentage of girls working increased as well.

Table 2. Regression of dependent variable, percentage of girls working, on independent variables	**Model 1**			**Model 2**			**Model 3**		
	B	Beta	Sig.	B	Beta	Sig.	B	Beta	Sig.
GDP per capita divided by 1000	-1.683	-.444	***	-.532	-.141		-.543	-.143	
Pop. Size				.000	-.046		.000	-.035	
Percent of pop in rural setting				.061	.091		.025	.037	
Life Expectancy				-.215	-.151		.025	.017	
Total Fertility Rate				3.801	.396	*	3.004	.313	
Percent of Women in Labor Force							.244	.280	**
Literacy Rates							-.190	-.235	
							.126	.047	
Avg Years of schooling									
Constant	22.746		.000	16.627		.454	6.971		.791
R^2	.187			.421			.479		

*p <.05 **p <.01 ***p <.001

The regression of the dependent variable, percentage of boys working, on the independent and control variables is show in Table 3. Model 1 includes the economic variable GDP per capita which is a significant predictor of percentage of boys working (p<.01). The negative relationship indicates that as GDP per capita increases, the percentage of boys working decreases. Model 2 includes population demographic variables. Similarly to the girl's linear regression model, total fertility rate was the only significant predictor of the percentage of boys working (p<.001). The higher the fertility rate in a country, the higher the percentage of boys working will be. Model 3 adds opportunity variables. Three variables are significantly related to the percentage of boys working: total fertility rate (p<.05), percent of women in the labor force (p<.01) and literacy rates (p<.05). The positive relationship between percent of women in the labor force and percentage of boys working indicates that as the percent of women in the labor

force increases, the percentage of boys working increases as well. Contrary to the girl's linear regression model, literacy rates are a significant indicator of percentage of boys working. The effect of literacy rates, however, goes in the opposite direction and shows that as literacy rates increase, the percentage of boys working decreases.

Table 3. Regression of dependent variable, percentage of boys working, on independent variables	Model 1			Model 2			Model 3		
	B	Beta	Sig.	B	Beta	Sig.	B	Beta	Sig.
GDP per capita divided by 1000	-.820	-.336	**	-.121	-.049		-.149	-.061	
Pop. Size				.000	-.041		.000	-.050	
Percent of pop in rural setting				.122	.185		.079	.120	
Life Expectancy				.080	.057		.302	.215	
Total Fertility Rate				5.460	.570	***	3.856	.402	*
Percent of Women in Labor Force							.234	.267	**
Literacy Rates							-.273	-.338	*
Avg Years of schooling							.106	.040	
Constant	22.954		.000	-9.679		.664	-7.453		.776
R^2	.101			.411			.482		

*p <.05 **p <.01 ***p <.001

Case Studies

For these case studies, I will individually analyze countries with the highest and lowest child labor rates. In addition, I will evaluate what policies and measures are implemented as a means of managing and reducing child labor.

Chad was the country listed with the highest rate of child labor—with 51% of girls working and 54% of boys working (Child Info, 2011). Chad's population consists of 11,206,152 people (World Bank, 2011). 46% of the population is literate. Literacy rates are significantly related to percentage of boys and girls working. Literacy rates can provide a better understanding of the education opportunities available. The lack of education opportunities helped to contribute to higher percentages of boys and girls working. Chad produced a measurement of .295 on the Human Development Index (Human Development Report, 2010). The closer the number is to 1, the more developed the country. Since Chad measured closer to 0, they are viewed to be as underdeveloped in the dimensions of access to knowledge, a long and healthy life, and a decent standard of living.

The average number of years of schooling for individuals in Chad is 1.5. Although the variable average years of schooling was not a significant indicator of the percentages of children working, it is apparent that it is still a very low number which reflects a lack of education opportunities. With 73% of the population residing in rural settings, there was a significant correlation as percentage of population in rural settings increased, so did the percentage of the children in the workforce. Chad's total fertility rate is 6.1 and the overall life expectancy is 49 years old. The variables life expectancy showed a significant correlation with the percentage of children working and the variable total fertility rate (TFR) showed a significant relationship with child labor rates as well. As life expectancy decreased and TFR increased, percentage of boys and girls working increased. According to the regression analysis, percentage of women in the workforce had a positive relationship with percentage of boys and girls working. Since 63% of women participate in the work force, a larger percentage of boys and girls would engage in the labor force as well.

The values for the different variables testing for a relationship with child labor rates depict Chad as a less developed nation. The lower development level of a nation can result in a greater likelihood that poverty is a contributing factor to more children working as a means of supplementing household incomes. The Labor Code in Chad establishes the minimum age for employment in Chad at 14 years and the minimum age for apprenticeships at 13 years. (United States Department of Labor, 2010). Education is compulsory starting at the age of 6 years for the duration of 9 years, but it is not readily enforced. It is difficult to enforce these laws due to lack of officials allocated for these tasks. The government has focused its attention on education reform as a tactic to improve conditions. Articles 35 to 38 of the Constitution of March 31, 1996 announced that all citizens are authorized to free secular education and training. Although they want to make education free, parents are still held accountable for paying for items necessary for school such as books and uniforms. The government proposed a National Action Plan for Education For All that strives to provide free and compulsory primary education for all children, especially girls, by 2015. This would help to eliminate gender disparities between boys and girls in education.

Turkey was the country listed with the lowest rate of child labor—with 1.8% of girls working and 3.3% of boys working (World Bank, 2011). Turkey's population is 74,815,703. Ninety-eight percent of the population is literate and they have a measurement of .679 on the

Human Development Index (Human Development Report, 2010). The average number of years of schooling is 6.5 and 31% of the population resides in rural settings. The total fertility rate is 2.1 and the overall life expectancy is 72 years old. 24% of the women are engaged in the workforce.

Individually analyzing all of these variables, it places Turkey at a higher developmental level than the Chad. The high literacy rate and average years of schooling indicates that there are more available education opportunities. As Turkey measures closer to 1 on the HDI, they are considered to be a more developed nation. Also, with a lower percentage of the population residing in rural settings there is less of a chance that children are working. The quantitative findings for the current study show that there is a correlation with high percentage of rural inhabitants and high percentages of children working. Although Turkey has an overall low child labor rate, it is ranked by the ILO as the third worst out of 16 countries in terms of weekly work hours for children (World Socialization Website, 2010). Child laborers in Turkey work on average 51 hours per week. A large proportion of the working children belong to two of the most marginalized groups, the Kurdish and Roma communities. This is an example of the difficulty of making sense of the information gathered in each country. While Turkey may appear to be a developed nation in terms of child labor, there are clearly issues involving the number of hours that children work. This information gets lost when the focus is only on the percentage of children working.

From the time period of 1993 to 1998, many families from the Roma and Kurdish communities were forced from eastern parts of the country into larger cities located in the west. As a result, many families ended up settling in shantytowns and are still enduring impoverished conditions to this day. Unfortunately, a method to try and escape their poverty is putting children to work as there is no welfare system to protect children's rights. In June 2003, the Turkish government enacted a new labor law that established the minimum age for employment at 15 years and allowed children up to the age of 14 to perform light work that does not disrupt their education (United States Department of Labor, 2010). In addition, it gives governors in provinces that depend on agriculture the flexibility of declaring the minimum age to work. In order to counteract this problem, the government has established several short-term solutions such as handing out free coal and food to the poor. Before any child can begin a job, they must have a physical examination done every 6 months. Children who have completed their education and are 15 years of age are allowed to work up to 7 hours a day and not surpassing 35 hours a week. Children that are 16 years old are allowed to work up to 8 hours a day and up to 40 hours a week.

The Ministry of Labor and Social Services (MOLSS) Inspection board are primarily responsible for establishing and enforcing child labor laws. In 2004, they organized a list of jobs suitable for children under 18 years old. For instance, they listed bars, coffee houses, dance halls, cabarets, casinos, public baths or industrial night work as unsuitable job sites or occupations. However, the MOLSS has been unable to enforce a large amount of the child labor laws for numerous reasons including traditional attitudes, socio-economic factors, and the overarching acceptance of child labor. As a result, the Inspection Board has concentrated their efforts on improving working conditions as a method of protecting working children.

In Turkey, there are other regional child labor elimination programs in progress that are supported by the local and national level authorities. There are currently 28 government-operated

centers directed at helping working street children. The Interior Ministry's Child Police are responsible for protecting children from employer abuses and, in Diyarbakir, they offer nutrition and swimming courses over the summer when children are most vulnerable to working in the streets. In Konya, computer literacy courses and organized soccer and tennis activities were provided to the children who otherwise would be actively participating in the workforce. These programs are aimed at eradicating the incidence of child labor by employing a series of preventative methods. Although these methods are in place, the situation of working children still remains to be bleak.

Discussion

Although the correlation matrix showed that a majority of the variables were significantly correlated with the percentages of boys and girls working, it also disproved my hypotheses about population size and average years of school being significantly correlated with child labor rates. I hypothesized that GDP per capita, percent of women in the labor force, literacy rates, average years of schooling, and life expectancy will all have a negative relationship with children working. Also, I hypothesized that TFR and percent of population in rural settings would have a positive relationship with children working. The linear regression model further disproved several more of my hypotheses by only indicating GDP per capita, TFR, percent of women in the workforce, and literacy rates as significant predictors of percentages of girls and boys working. Furthermore, I had to eliminate the HDI variable from the model because it measured literacy rates, average years of schooling and life expectancy at birth, which are variables that are already included in the regression models.

In the first model, GDP per capita proves to be significant for both the girl's and boy's models. In the second model, however, GDP per capita loses strength and significance as population demographic variables are included. These variables are typically used to describe the structure of a nation and can be influenced by GDP. TFR is the only variable that is significant at the $p<.05$ level for the girl's model and significant at the $p<.001$ level for the boy's model. What this shows is that since GDP per capita may be partially explained by the other variables introduced in the model, it will lose explanatory power. In this model, TFR is the best predictor of child labor rates. In the final model, opportunity variables including education opportunities and job opportunities for women are presented. Again, GDP per capita does not show a significant relationship for both the girl's and boy's models. Total fertility rate loses significance in the girl's model but remains significant at the $p<.05$ level for the boy's model. There is a vast difference between the girl's model and the boy's once the opportunity variables are introduced.

The variable percent of women in the labor force gains significance in both models, at the $p<.01$ level for both of the girl's and boy's models but another variable becomes significant in the boy's model that does not achieve significance in the girl's model. The variable literacy rates becomes significant at the $p<.05$ level and is almost significant in the girl's model. However, there seems to be quite a few conflicting reasons as to why some variables are significant in the boy's model and some are not significant in the girl's. For instance, because of the relatively small number of countries with data available, the relationship is not as pronounced as it would be if more countries were included. In addition, in my literature review, I discuss the

discrepancies between what is considered work and how the disregard for domestic work as work ultimately perpetuates the idea that boys engage in the labor force more than girls.

An important relationship to acknowledge is that half of the variables that proved to be significant are attributed to women. Total fertility rate measures the average number of children a woman will bear in her lifetime and percent of women in the labor force provides a description of the proportion of women working. This illustrates the influence that the status of women in a country can have on child labor rates. With a high total fertility rate, there is a greater likelihood that children will be working. The significant relationship between TFR and percentages of children working supports my hypothesis that the higher a country's TFR is, the higher child labor rates will be. Families that have more children are more likely to do so because they live in rural settings and invest their energy in having children and putting them to work in order to help supplement household income as they grow older. Children are seen as a source of caretaking when parents become too old to care for themselves. With increased opportunities available for women, they wouldn't need to have so many children to work in the fields. Instead, they can focus their time on becoming educated or working, which leads to the next significant variable. Contrary to my hypothesis, as the percentage of women working increased, so did the percentage of children working. At first, I predicted that with a higher percentage of women working, there would be less of a need for children in the workforce. However, the linear regression model and correlation matrix tell a different story and express that in actuality, as the percent of women increases, so do the percentages of children working. This relationship can be due in part to the type of work women are doing. For instance, if they are taking part in largely agriculture work, then it seems only sensible that children would be expected to work as well. This also indicates that there is a relationship between the status of women and children. This is another one of those highly complex relationships including what is considered work and what is being reported as work. In many places, high status women do not work outside of the home and, therefore, only poorer women who also need to have their children in the labor force are employed.

For my case studies, I examined Chad and Turkey as two examples of countries with and high and low incidents of child labor. Although Chad has a very high child labor rate, Turkey ranks higher in terms of hours per week that children work. This was an incredibly interesting find, but then again, there was hardly data available on child labor rates from most developed nations. This individual analysis allows us to compare the different rates and establish patterns we normally can't determine with a model comparing numerous countries. Although a small percentage of children are working in Turkey, the children that are working are working 30+ hours a week. When comparing policies in place and efforts to combat child labor in both countries, it becomes apparent that a greater effort is being made in Turkey as they have an entire task force dedicated to creating and enforcing child labor laws. Although there is a labor code established in Chad and Turkey has the Ministry of Labor and Social Services, both seem too difficult to enforce. Other measures have been taken as a means to try and curb child labor rates such as the education initiative in Chad and the government operated centers directed at helping working street children over the summer and providing courses to help keep them off the street.

The overarching themes between both countries are that education, attitudes, and socioeconomic factors play major roles in influencing the frequency of children working. In Chad, although education is free, families still face the burden of having to pay for uniforms and books. This could prove to be a problem as most impoverished households are unable to afford

the extra costs. If families must pay for their children to go to school, the likelihood that children will escape poverty through education becomes less probable. Chad is an example of a nation that still faces education inequality not only among the rich and poor, but among boys and girls as well. Unless this gender disparity is eradicated, the future looks bleak for female advancement in society and, as I mentioned before, the status of women has an impact on the percentages of children working.

In Turkey, the marginalization of the Roma and Kurdish communities has resulted in forcing families to live in impoverished conditions. Since there is no welfare system to protect children's rights and since labor laws are difficult to enforce, children are put to work to help support the family. The attitudes toward these communities help to contribute to the increasing child workforce. As a majority of the children that make up the small percentage of children working are from these ostracized communities, the ability to cut child labor rates lies within changing society's attitudes. This process requires efforts from all citizens to stop the discrimination against the Roma and the Kurds. This attitude shift will ultimately help in the fight to keep children out of the workforce and in school.

Limitations

I encountered several problems along the way as I collected data for each variable from each country. Through the different sources and outlets of information, data were not consistent from source to source. Also, some information was not up-to-date. In some instances, there would be information available from countries dating in the past year or 2 years. However, in other instances, the most recently updated data for a certain country could date back a decade. This inconsistency and outdated information could skew my data and provide us with inaccurate findings. In addition to outdated information, some developed countries did not report child labor rates. This is not to say that there are not children working in these countries, but it also impacts my research by only providing me with information from mostly developing nations and a small amount of developed nations. If more data was available, then my findings could have more accurately portrayed the current situation of child labor globally.

Conclusion

The complicated relationship between child labor and poverty interconnects with numerous factors such as societal attitudes, social acceptance of the problem, education opportunities and much more. However, a majority of the misunderstandings of the frequency of child labor stem from a poor recording system of labor rates, a vague definition of exactly what is considered to be labor and a mediocre distribution of household surveys for measurements. A better system of gathering data could aid in the development of solutions. There is no singular solution to eliminating the problem of children working; however, there are numerous ways to tackle the problem. As mentioned in the literature review, some children believe that if they don't work, their family will starve. If there were increases in the wages parents earn, children wouldn't feel the need to have to work or else their family would go hungry. In the dimension of education, if more funding was allocated to ensuring that education is completely free, parents

would not need to withdraw their children because they cannot afford to pay for books or school uniforms.

Cultural attitudes might have the biggest impact on child labor rates as some societies might believe it is an acceptable practice. Instead of trying to shift the attitude to a more a Westernized one, it is important that these societies see that education is a solution to breaking the poverty cycle. In reference to the literature review, it was noted that some cultures believe that 'Victorian' style education hinders children's abilities to learn trades that would prove useful to them if they reside in a rural setting. A method that can be used to assuage this unease about education for children is to provide courses that can help reinforce useful trades such as farming or sewing. Finally, cultural attitudes also have an effect on how women are treated. If women were viewed globally as a valuable part of society, families would invest their time and energy into educating daughters instead of simply educating their sons. With more children becoming educated, imagine the potential for future innovations and solutions to global problems.

Appendix

Table 1a. Correlation Matrix of Percentage of girls working and other variables

Correlations

	Percentage of girls working	GDP	Pop. Size	Literacy Rates	HDI	Avg Yrs of Schooling	Percent pop in rural setting	TFR	Life Expect.	Percent of Women in Labor Force
Percentage of girls working	1									
GDP per capita	-.457***	1								
Pop. Size	-.073	-.062	1							
Literacy Rates	-.568***	.431***	-.067	1						
Human Development Index	-.670***	.717***	-.016	.769***	1					
Avg Yrs of Schooling	-.140	.367***	-.056	.466***	.504***	1				
Percent pop in rural setting	.480***	-.532***	.086	-.522***	-.750***	-.437***	1			
Total Fertility Rate	.647***	-.495***	-.061	-.779***	-.864***	-.402***	.578***	1		
Life Expectancy	-.615***	.620***	.012	.691***	.924***	.375***	-.635***	-.855***	1	
Percent of Women in Labor Force	.470***	.007	-.056	-.105	-.279***	-.003	.275***	.258**	-.315***	1

*p <.05 **p <.01 ***p <.001

Table 1b. Correlation Matrix of Percentage of boys working and other variables

Correlations

	Percentage of boys working	GDP per capita	Pop. Size	Literacy Rates	HDI	Avg Yrs of Schooling	Percent pop in rural setting	TFR	Life Expect.	Percent of Women in Labor Force
Percentage of boys working	1									
GDP	-.345**	1								
Pop. Size	-.071	-.062	1							
Literacy Rates	-.614***	.431***	-.067	1						
Human Development Index	-.644***	.717***	-.016	.769***	1					
Avg Yrs of Schooling	-.180	.367***	-.056	.466***	.504***	1				
Percent pop in rural setting	.497***	-.532***	.086	-.522***	-.750***	-.437***	1			
Total Fertility Rate	.654***	-.495***	-.061	-.779***	-.864***	-.402***	.578***	1		
Life Expectancy	-.575***	.620***	.012	.691***	.924***	.375***	-.635***	-.855***	1	
Percent of Women in Labor Force	.432***	.007	-.056	-.105	-.279***	-.003	.275***	.258**	-.315***	1

*p <.05 **p <.01 ***p <.001

Table 1c.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Percentage of girls working	81	2	51	17.15	14.333
Percentage of boys working	82	3.3	59.0	19.640	14.3492
Pop. Size	147	20398	1331460000	43026007.34	1.488E8
Literacy Rates	147	22	100	87.53	16.112
Human Development Index	133	.140	.938	.63341	.193792
Avg Yrs of Schooling	136	1.2	48.1	7.907	4.6207
Percent pop in rural setting	147	0	100	43.52	23.118
Total Fertility Rate	144	1.2	7.1	2.900	1.4334
Life Expectancy	144	44	83	68.64	10.735
Percent of Women in Labor Force	136	14	91	53.93	15.071
GDP per capita divided by 1000	147	.16	79.09	12.0967	16.27859
Valid N (listwise)	76				

List of Countries

Afghanistan
Albania
Algeria
Angola
Argentina
Armenia
Azerbaijan
Bahrain
Bangladesh
Belarus
Belgium
Bosnia and Herzegovina
Brazil
Burkina Faso
Burundi
Cambodia
Cameroon
Cape Verde
Central African Republic
Chad
Colombia
Democratic Republic of Congo
Costa Rica
Cote d'Ivoire
Djibouti
Dominican Republic
Ecuador
Egypt
El Salvador
Ethiopia
The Gambia
Georgia
Ghana
Guatemala
Guyana
Haiti
Honduras
India
Indonesia
Iraq
Jamaica
Kazakhstan
Kenya
Lebanon
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritania
Mexico
Mongolia
Morocco
Mozambique
Namibia
Nepal
Nicaragua
Niger
Panama
Paraguay
Peru
Philippines
Portugal
Rwanda
Senegal
Serbia
Sierra Leone
Sri Lanka
Sudan
Suriname
Swaziland
Tanzania
Thailand
Togo
Turkey
Uganda
Ukraine
Uruguay
Venezuela
Vietnam
Yemen
Zambia

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