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Editor
Dr. Bernhard G. Gunter, Adjunct Associate Professor, Economics Department, American University; Washington, DC; and President, Bangladesh Development Research Center (BDRC), Falls Church, VA, United States. The editor can be reached at gunter@american.edu.

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Maternal Schooling in Pakistan: 
The Girl Effect in Action

Lisa Gabrielson

Abstract

In Pakistan, women have long been second-class citizens due to a deeply embedded set of religious and cultural values that have prevented equality between men and women, and between boys and girls. Recently, the Pakistani government has been investing a large amount of funds into education. While in the past most of the Pakistani Government’s segregated education funding went mostly to boys’ schools, there has been increased international pressure to expand the availability of primary education to girls. The collateral effect of women’s education expands far beyond the ability to read and write. Women with an education have more influence and more bargaining power when it comes to making decisions, which is beneficial for their families as well as society. When women are educated there is a drastic decrease in fertility, maternal mortality, infant mortality, and child mortality. This is called the girl effect. This paper reviews the girl effect based on the recent experience in Pakistan.

I. Introduction

In December 2003, Pakistan adopted a new strategy to reduce poverty in the country through a variety of new policies and reforms.1 As part of reform efforts, the Pakistani government gave high priority to the improvement of social causes, in particular to education.2 While education is important for many different reasons, it is especially the education of girls that has effects across economic, social, political, and humanist aspects. As will be shown below, looking at Pakistan’s actual data shows that shortly after girls’/women’s enrollment increased other statistics (such as infant mortality, maternal mortality, sanitation, and life expectancy) improved.

The argument behind this linkage is that when women are educated, they pass the value of their schooling down to their children, so student enrollment grows at an accelerated

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2 World Bank (2009).
rate. In addition, fertility rates, infant mortality and maternal mortality drop due to women not only understanding basic medicine and sanitation, but also because women feel empowered to speak up and make decisions for their lives and the lives of their children. Women who are educated tend to have more bargaining power with the males in the home. More broadly, by having more educated people, an economy has a stronger workforce. Furthermore, improvements in sanitation (which typically is pushed for more by women than men), allow for healthier citizens who then have more time to work and spend less money on healthcare. All of these outcomes are called “The Girl Effect”, a cyclical correlation between women’s education and the above mentioned improvements and advancements in a country’s culture, society, and governing body.

This paper examines the effect increased female enrollment had in Pakistan, especially in rural areas. Following this introduction, a literature review (section II), and some empirical background (section III), sections IV to VI review, respectively, the effect maternal schooling has on school enrollment and learning, on health and fertility, and on human capital and economic growth.

II. Literature Review

There are a number of studies that examined the effects of maternal education on physical health. Among the early contributions are Cleland and van Ginneken (1988); Diamond, Newby and Varle (1990); Boerma, Sommerfelt and Bicego (1992); Schultz (1993); Mahmood and Kiani (1994) and Hagen (1995). All of them come to the conclusion that when a mother is educated, prenatal care and sanitation increase, and infant and maternal mortality decrease. Among the more recent contributions, which also refer specifically to Pakistan, are Khalid and Mujahid-Mukhtar (2002); Kabeer (2005); Mortenson and Relin (2007); Andrabi, Das and Khwaja (2009); Levine, Lloyd, Greene and Grown (2009) and a World Bank (2009) report.

- Khalid and Mujahid-Mukhtar (2002) discuss the different options that both the Pakistani government and the world have to continue the upward trend in Pakistan’s education. They outline a Perspective Development Plan (PDP), which is a suggestion of the type of reforms, movements, and goals that need to be implemented. The basic essence of their PDP is to exert a positive influence on the overall environment for women and girls and, particularly, girls’ education. They suggest the formulation of a national policy for women and women’s rights, as well as the implementation of a national plan of action for women, which would introduce programs for the economic empowerment of women and make efforts to raise awareness against violation of human rights and domestic violence.4
- Kabeer (2005) notes that a woman’s role in the family changes when she is educated. Mothers who are educated tend to have more bargaining power in the

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4 Yet, they also emphasize the importance of continuing with improvements for both boys and girls because: (1) an educated woman is an empowered woman who will make decisions for and stand up for herself and (2) an educated man will understand the importance and value of an educated woman and mother. The children of these men and women will continue to pass on the importance of education and human capital to their children, and thus further improve the lives of the Pakistani people.
home, whereas women who are not tend to follow orders from the male members of the household.

- Mortenson and Relin (2007) wrote a book entitled “Three Cups of Tea”, which has reached international fame. The book documents Greg Mortenson’s experience in Pakistan. A mountain climber turned humanitarian, Mortenson has, to date, built more than 130 schools for both boys and girls in rural Pakistan and Afghanistan. Mortenson’s one stipulation is that the local leaders allow girls to attend the schools, with the future goal of having 50 percent of the enrolled students be girls. Mortenson’s book has drawn attention to the issues behind amplification of female education worldwide.

- Andrabi, Das and Khwaja (2009) delve into the role that parental education plays in childhood scholastic achievement, particularly the education of mothers. They found that women who are educated spend more time daily on educational activities for their children and are more likely to create an environment conducive to ‘study time’.

- Levine, Lloyd, Greene and Grown (2009) examine the impact that improvements and increases in women’s education have on developing economies. By educating women, a government facilitates education of future generations, a stronger and better-equipped workforce, and a healthier and more knowledgeable population. They state that in some countries in the world, a knowledgeable and capable population is what certain governing bodies are trying to avoid, but at least in Pakistan the government is looking forward.

- Finally, according to a World Bank (2009) report, Pakistan experienced a period of economic growth beginning in the early 2000s that led to governmental investments in multiple areas, the most important being education. As part of the government’s overall reform efforts, high priority was given to the improvement of social conditions, in particular to the education sector. The report found that since then, enrollment has increased for both boys and girls in urban and rural areas, but the greatest increases in school attendance have been for girls in urban areas. Dropout rates in Pakistan are drastically decreasing, teachers are being hired, and the government is funding private schools. The report also examines the specific role that government played in these improvements, especially for women and girls.

III. Empirical Background

Pakistan is a country with a rich and far-reaching cultural, religious, and social background. Until recently, women were considered second-class citizens. Indeed, in most rural areas this remains to be the typical case. Women have long been powerless to make decisions about their homes, marriages, bodies, and even their children. Women are powerless because they are uneducated, and girls are uneducated because their mothers are powerless to push for their education. Fortunately, because Pakistan has recently begun to invest more rigorously into its education system, more and more families are giving their girls the chance to attend primary school. When these girls grow up to be mothers, they too will then send their children to school.
As Figure 1 shows, over the last four decades, the annual growth rate of Pakistan’s gross domestic product (GDP) has been highly volatile, averaging to about 5 percent. The growth rates allowed GDP per capita to increase from US$285 in 1970 to US$651 in 2007, measured in constant 2000 US$. As Figure 2 shows, income per capita increased relatively slowly during the 1970s, accelerated during the 1980s, grew then again more slowly during the 1990s, and increased more sharply during 2002-2007.

Figure 1: Growth Rates of GDP and GDP per capita, 1970-2007 (percent)


Figure 2: GDP per capita, 1970-2007 (in constant 2000 US$)

Because of this increase in GDP and GDP per capita, not only is the government in a position where it can finance more education, but also families are able to send their children to school rather than to work to increase family income. Economic prosperity provides more time and resources which then can be used towards education and health care. As Figure 3 shows, school enrollment, especially for girls, has increased since 1970. An interesting and important observation however is that the primary school enrollment ratios for girls have increased relatively sharply during the early 1970s, despite little or no increase in GDP per capita during those years.

**Figure 3: Male & Female Gross Primary School Enrollment, 1970-2008 (percent)**

![Graph showing male and female primary school enrollment from 1970 to 2008.](image)

Source: World Bank (2008) *World Development Indicators 2008*, CD-Rom, updated with *World Development Indicators* data as posted by the World Bank on May 2010; data for a few missing years was calculated by the author using simple averages.

The major difficulty in Pakistan for women’s education is not money, but rather social pressures and challenges brought on by a rich historic culture. According to Pakistan’s constitution, education funding is a matter decided by provincial governments, not national, and the financing and service responsibilities are in the hands of provinces and districts. This creates a major obstacle for women and girls, because while the national government may be willing to adopt radical changes in women’s education, cultural and social pressures in rural areas and villages make these adaptations difficult.

As documented in World Bank (2009), in 2003 a local government in Punjab (a region of Pakistan), launched the Punjab Education Sector Reform Program (PESRP). This program consisted of upgrading schools, filling teacher vacancies, specific stipends for girls, and subsidies to low-fee private schools. Following the creation of the PESRP, net

\[5\] World Bank (2009).
primary enrollment increased by 38 percent between 2001 and 2007. Both boys and girls increased participation in school by more than 36 percent, and female enrollment had reached an all-time regional high of 59 percent. The PESRP shows that if a region’s actions towards education reflect those that the government has begun, the results are enormous. There is, however, still room for improvement. In Punjab, dropout rates are still high due to late entry into primary school (many children do not start school until the age of 10), and only a small proportion of students pursue studies beyond the primary level. Additionally, for every 100 urban males that attend primary school, only 66 girls do in rural Punjab. While there is still work to be done, educating women in particular has long-term effects on education, among other things, that will last for generations to come.

IV. Effects of Maternal Schooling on Enrollment and Learning

Andrabi, Das and Khwaja (2009) have shown that the presence of a girl’s school in a woman’s birth village at the time she was at primary school age increases the woman’s average years of education by 0.61 years. Considering that the average of a woman’s education is 1.2 years, 0.61 years are an enormous increase. Furthermore, it has been shown that maternal education has an effect on a child’s education when it comes to enrollment, hours per day spent on educational activities, and academic achievement. Therefore, when these educated girls become mothers, enrollment will continue its exponential upward trend. Across the globe, there is a strong correlation between maternal education and child educational achievement, in particular for daughters, because “if children (principally girls) see that their mothers attended and valued school, they are more likely to follow that example.”

Not only does a women herself benefit from her education, but in their roles as mothers, women can also pass on additional educational benefits to their children, the most important of which is to keep the cycle going. It is an “inter-generational transmission of human capital”.

Human capital, as defined by Amartya Sen (1997), is the agency of human beings augmenting production possibilities through skill and knowledge as well as effort. Mothers who are educated have the ability to pass down their own earned human capital for their children to build on, and so on through generations. As Andrabi, Das and Khwaja (2009) have pointed out, mothers who are educated act within the space they control (typically the home) by making sure their children spend more time studying and by creating a nurturing learning environment. Mothers with some education spend an average of an extra 75 minutes per day on educational activities outside of school with their children. Additionally, a child of a mother with some education spends an average of 43 more minutes on educational activities outside of school, either alone or with other family members (such as older siblings or other relatives).

When mothers are educated, they understand the importance of school-related homework and the priority it takes over other parts of household life. Children of educated mothers spend less time on non-school related housework than those whose mothers are not educated. For children with uneducated mothers, school-related homework time declines

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sharply after the age of 10, and this decrease is most drastic for teenage girls. This trend is a reflection of the deeply seeded culture that surrounds women in Pakistan. When a girl reaches her teenage years, she is expected to shift her focus away from education and towards household duties and preparing for marriage and a family of her own. Educated mothers seem to understand the importance of education as well as learning these other skills, and they therefore continue to encourage their children to spend time on education. As shown in the charts of Figure 4 below, maternal education has a drastic effect on the amount of time a child spends on housework, paid work, study time and playtime.\textsuperscript{8}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure4.png}
\caption{Children’s Time-Use and Age, and Maternal Education}
\end{figure}

There is also a strong correlation between maternal education and child test scores. A child of an educated woman has an average of 43 percent higher test scores in Math and 35 percent in Urdu (the vernacular language) than their peers whose mothers are uneducated.\textsuperscript{9} These score discrepancies correspond to roughly one additional year of learning. Again, in a country where a female’s average education is 1.2 years, an

\textsuperscript{8} Andrabi, Das and Khwaja (2009).
\textsuperscript{9} Andrabi, Das and Khwaja (2009).
additional year is a huge advantage. These score increases are mostly due to the fact that mothers do not need to be at an advanced cognitive level to make their children study.

V. Effects of Maternal Schooling on Health and Fertility

Maternal education has a strong positive effect on personal and child survival, especially during pregnancy and birth, because it indicates at least a basic understanding of modern health, improves the effectiveness of maternal behaviors involving the child’s health, and changes the mother’s role within a family to include greater attention to the use of modern health services and sanitation. Educated women tend to better understand the importance of prenatal care, both for themselves and for the health of their child. These women are more likely to seek and obtain adequate care rather than, like in most developing countries, receive poor to no prenatal care.

Maternal education also impacts the importance women place on prenatal care. Schultz (2001) undertook a large cross-country study and concluded that for every year of schooling, infant mortality declines by 5-10 percent. In Pakistan in particular, women with more education place a higher emphasis on the importance of frequent prenatal visits to doctors, as illustrated in Figure 6 below.

Figure 5: Number of Prenatal Visits by Maternal Education and Perceived Importance of Prenatal Care

Source: World Bank (2009), Figure 8.

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10 Cleland and Van Ginneken (1988).
Thanks to an increase in women seeking prenatal care, infant and child mortality in Pakistan has fallen drastically. Between 2000 and 2009, stillbirths have declined from 85 to 77.5 per 1000 live births, and under-5 child mortality has declined from 108 to 97.2 per 1000 children, a downward trend which is illustrated over a longer time period in Figure 6 below.

It is not coincidental that while female education increases, infant and maternal mortality decrease and a women’s choice to seek prenatal care becomes increasingly common. Women who do not perceive prenatal care are poor, of high parity, low levels of education, and are unaware of the importance of prenatal care. Regardless of wealth, women who perceive prenatal care to be important are more likely to obtain adequate care, and women who perceive it to be important tend to be those who are educated. Economic prosperity does directly influence these numbers, because the government can fund facilities and clinics, but the people still have to have the knowledge and belief in modern medicine to seek out this care, and that is where the education of women and girls comes strongly into play.

Figure 6: Under-5 mortality (per 1,000)


Knowledge of modern health extends beyond prenatal and infant care. Fertility and family planning are also highly influenced education. Women who are educated are empowered to make decisions about their bodies. When women (instead of men) are making decisions about family planning, the number of children born per woman decreases. Again, the decreasing number of children per woman over time (see Table 1 below) does not coincidentally parallel the increases in female education, but is due to the increased female school enrollment.

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Table 1: Age-Specific and Total Fertility Rates

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>100.0</td>
<td>75.9</td>
<td>60.2</td>
<td>31.5</td>
</tr>
<tr>
<td>20-24</td>
<td>234.3</td>
<td>223.9</td>
<td>182.5</td>
<td>151.7</td>
</tr>
<tr>
<td>25-29</td>
<td>277.7</td>
<td>233.9</td>
<td>227.5</td>
<td>189.5</td>
</tr>
<tr>
<td>30-34</td>
<td>193.5</td>
<td>189.3</td>
<td>161.1</td>
<td>133.3</td>
</tr>
<tr>
<td>35-39</td>
<td>194.6</td>
<td>80.6</td>
<td>85.3</td>
<td>61.9</td>
</tr>
<tr>
<td>40-44</td>
<td>*</td>
<td>102.7</td>
<td>38.7</td>
<td>21.3</td>
</tr>
<tr>
<td>45-49</td>
<td>*</td>
<td>*</td>
<td>32.4</td>
<td>4.8</td>
</tr>
<tr>
<td>TFR</td>
<td>5.68</td>
<td>4.69</td>
<td>3.94</td>
<td>3.03</td>
</tr>
</tbody>
</table>

Source: Hagen (1995), Table 7 (* refers to partially truncated data, ** indicates that the 1991 data is based on a six-year average (1988-1993).

Educated women also make decisions about their own bodies and families. This creates a more manageable population growth. As shown in Table 2, comparing fertility and selected maternal health indicators of five South Asian countries (and Canada as a reference), countries with a higher percent adult female literacy rate have fewer children and maternal mortality drops significantly.

Table 2: Fertility and Selected Maternal Health Indicators in South Asia (Canada as reference)

<table>
<thead>
<tr>
<th>Socioeconomic Indicators</th>
<th>Pakistan</th>
<th>India</th>
<th>Bangladesh</th>
<th>Nepal</th>
<th>Sri Lanka</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Capita Income (US$)</td>
<td>400</td>
<td>330</td>
<td>220</td>
<td>180</td>
<td>500</td>
<td>20,440</td>
</tr>
<tr>
<td>Female Literacy Rate (%)</td>
<td>21</td>
<td>34</td>
<td>22</td>
<td>13</td>
<td>84</td>
<td>n.a.</td>
</tr>
<tr>
<td>Fertility Indicators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crude Birth Rate</td>
<td>41</td>
<td>29</td>
<td>39</td>
<td>38</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Contraceptive Prevalence (%)</td>
<td>12</td>
<td>43</td>
<td>31</td>
<td>14</td>
<td>62</td>
<td>73</td>
</tr>
<tr>
<td>Total Fertility Rate (births/woman)</td>
<td>6.2</td>
<td>3.9</td>
<td>4.6</td>
<td>5.5</td>
<td>2.5</td>
<td>1.8</td>
</tr>
<tr>
<td>Maternal/Child Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal Mortality Ratio (per 100,000)</td>
<td>500</td>
<td>460</td>
<td>600</td>
<td>830</td>
<td>80</td>
<td>5</td>
</tr>
<tr>
<td>Births with Trained Attendance (%)</td>
<td>35</td>
<td>33</td>
<td>5</td>
<td>6</td>
<td>94</td>
<td>99</td>
</tr>
<tr>
<td>Under 5 Mortality Rate (per 1000)</td>
<td>137</td>
<td>124</td>
<td>127</td>
<td>128</td>
<td>19</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: Hagen (1995), Table 2 (based on UNICEF’s *The State of the World’s Children 1994*).
Fortunately for Pakistan, a more sustainable rate of population growth is a foundation for strong economic progress, which is why the correlating drop in fertility rate from 4-5 children in 1981 to 3 children in 1991 was a contributing factor to the economic successes Pakistan experienced shortly after. With a smaller population of children to take care of, parents can commit more resources to a smaller number of children as well as have leftover income to spend elsewhere.

VI. Effects on Human Capital and Economic Growth

Educational attainment is related to an adult’s long-term earning capacity, or human capital. For a woman, her ability to bargain for resources within the family is also related to her schooling. A mother who has attended school may have more resources to send her child to school and encourage and facilitate educational activities in the home than if she had not attended herself. Maternal education helps to eliminate inequalities between men and women in the home. In Pakistan, a women’s fortune is tied closely to her family and male members of the family make most decisions.

However, in families where women are educated, their opinions tend to be better respected. By giving women more economic power, they can invest in their children, both male and female. Men tend to favor male children in societies like Pakistan. Women tend to invest more into the welfare of their families than men do. When women and girls earn income, they reinvest 90 percent of it into their families, as compared to 30 percent for males. When women are allowed to decide where resources are allocated in a household, she tends to invest in sanitation, education, and other aspects that will benefit the family entirely. Additionally, women will invest equally in male and female members of the family, whereas men tend to favor male children. The types of investments that women make are more beneficial in the long run, not only inside the family but also externally.

When children are healthier because their mothers were educated, less money and time is lost on healthcare. People whose mothers invested in their health while growing up are less likely to get sick as adults, both because there are physically healthier and because they better understand sanitation and modern medicine. Therefore, more adults are available to work and are taking less time off or losing their job due to illness. As stated above, women tend to reinvest more in their families than men do.

As Figure 7 shows, overall, education also has a greater return for women than men, particularly for women who have reached a level of secondary education. For every year she is educated, a woman’s wages increase by 10-20 percent, whereas for men the increase is only 5-15 percent. In Pakistan in particular, women’s educational returns are higher across the board. Educated women have more economic power for themselves. Women who have completed primary school can take out loans to start their own business.

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14 Fortson (2003).
VII. Conclusion

As illustrated on the Girl Effect website, if a girl goes to school, grows up and gets a loan, and then buys some cows, she can make money off of her business selling milk. When she earns her wages, she will reinvest it in her children, for example by financing clean water or sanitation facilities. Not only does this end up benefiting her children, family, and even her village, but also there is a good chance that the woman will also gain the respect of the men in her social sphere, outside the home where she already has gained bargaining power. Perhaps this woman’s influence or she herself will end up on the city council and be able to champion for more positive change. Consequently, quality of life improves, which has an effect on the economy.

All together, the “Girl Effect” has far-reaching consequences in every country across the globe, but particularly in Pakistan, where girl’s education is a relative new concept. It is important to forward social, economic, governmental, and medical change. While efforts to improve the quality and quantity of education for boys and girls are important, it is especially important that girl’s education catches up with boy’s education. Given the recent initiatives in Pakistan, future enrollment ratios will hopefully soon match the ratio of boys and girls in Pakistan’s population.

Thanks to the availability of funding due to the economic success in Pakistan, the national government has begun pouring money into schools. Additionally, women’s rights in Pakistan are slowly improving as society moves away from the cultural norms of the past hundreds of years. More schools for girls are being built nation-wide and more emphasis is put on teacher training, as well as improvements on existing educational...
systems and the funding of private schools. More recently, the Millennium Development Goals (MDGs) set a goal that by 2015 all children have access to complete free and compulsory primary education of good quality. This goal is underway in Pakistan, and at least until the recent floods, the percentage of children enrolled has been growing.

Another important trend is the increased ratio of female to male teachers in rural areas, which can be linked to educated women understanding the need for well qualified teachers, as well as schools understanding the importance of hiring female teachers to better benefit female students by setting an example. The improvements in schooling initiated by governmental reform will have impacts across the board in Pakistan for years to come, as the children they are educating now grow up, hold jobs, and raise families of their own.

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Effects of Neoliberal Reforms on Small-scale Agriculture in Brazil

Alexandra Huddell

Abstract

Following the 1980s debt crisis, many developing countries like Brazil were pushed by the International Monetary Fund to adopt a variety of neoliberal reforms which limited government interventions, reduced subsidies, and opened up the economy to international trade and competition. This article reviews the effects these neoliberal reforms had on small-scale agriculture in Brazil, by looking specifically at coffee farmers. It shows that even though production increased initially for all coffee producers, market competitiveness soon favored capital-intensive landowners and foreign interests but marginalized small rural farmers. The reforms also had the unintended consequences of an accelerated urban migration and environmental degradation.

I. Introduction

Brazil underwent major economic shifts as it began to industrialize quickly after World War II. The military government, which took power in 1964, intensified Brazil’s industrialization, using a stepped up import-substitution strategy.\(^1\) When inflation and slow economic growth hit in the late 1970s, the government was forced to borrow externally. That external borrowing was not to invest more in industrialization, but to avert a balance-of-payments crisis. When the world economy went into a recession in the early 1980s, the large external debts of Brazil and many other developing countries became unsustainable and triggered the 1980s debt crisis. Brazil and many other developing countries were forced to go to the International Monetary Fund (IMF), which imposed strict conditions (known as structural adjustment) and attempted to control the macroeconomic policies of their loan recipients.

Neoliberal reforms, which reduced subsidies and government intervention as well as liberalized markets, had complex repercussions for Brazil’s agricultural sector. The impact on Brazil’s coffee market is illustrative. Initially, production increased for all

coffee producers. However, soon market competitiveness favored capital-intensive landowners and foreign interests, and thus marginalized small rural farmers. Exposing the small-scale farmers of Brazil to the world economy, at a time when world coffee prices fell dramatically low, forced them out of the market. The new policies also encouraged mass production, expansion of farmland, and mono-crop coffee planting, which adversely affected the environment in Brazil, causing soil degradation, which has hurt the agriculture sector’s promise today.²

This article examines the effects of neoliberal reforms on small-scale agriculture in Brazil. Following this introduction, the next section provides a brief review of the literature. The third section presents some empirical background, while the fourth section examines the effects and unintended consequences of neoliberal reforms in more details. The fifth section offers a broader critique of neoliberal reforms (mostly based on Stiglitz, 2002), before the last section provides some conclusions.

II. Brief Literature Review

There are various contributions looking at the impact of Brazil’s neoliberal reforms from various perspectives. A mostly descriptive report by the Food and Agriculture Organization of the United Nations (FAO) (2002) provides detailed data on the major characteristics of agriculture for developing countries. For instance, it shows that the prices of agricultural products, especially food, fluctuated sharply during the 1980s and 1990s, which had important implications for the economies of developing countries and especially their small-scale farmers. The report also shows that neoliberal reforms adopted during that time made the situation worse for small-scale farmers.

Watson and Achinelli (2008) look into the effect of Brazil’s neoliberal reforms specifically on coffee producers, and conclude that Brazil’s neoliberal reforms have hurt its most vulnerable people (i.e., the small-scale rural farmers) the most. The Brazilian government adjusted its import-substitution strategy to development in the late 1980s because high inflation and external debt were beginning to plague Brazil’s macroeconomic health. Like many other parts of the world, Brazil began to implement neoliberal economic reforms, including in the agricultural sector. These neoliberal reforms reduced subsidies and government intervention and liberalized the market. They also encouraged greater production and increased efficiency for coffee producers and exporters.³

Perz (2000) examines the connections between neoliberal reforms and rural-to-urban migration. He concludes that Brazil experienced a mass urban migration as a result of neoliberal reforms and the economic conditions of the 1980s. The rural populations in Brazil lost over 1.4 million residents annually between 1980 and 1991. As economic recession, urban migration and globalization took root in Brazil, the government continued to invest in agricultural capital and mechanized farming. Yet, this did not have a positive effect on small farmers as it hurt their ability to compete with large farms.

² See Watson and Achinelli (2008).
³ Watson and Achinelli (2008).
Stiglitz (2002) is one of the most influential critics of the neoliberal reforms that the IMF and World Bank imposed on the developing countries such as Brazil in the 1980s. The IMF focused on macroeconomic conditions like a country’s budget and its inflation rate, while ignoring other major indicators such as economic growth and unemployment rates. In this famous critique, Stiglitz (2002, p. 27) accuses the IMF of confusing means with ends by focusing exclusively on the reduction of inflation rates.

Most recently, Araujo (2009) reviews a study by the Brazilian Institute of Geography and Statistics (IBGE) that highlights the benefits of small-scale agriculture in Brazil. The report implies that small-scale farming is more efficient than large agribusiness in terms of land use. This has important implications for international development. Based on the IBGE report, Araujo argues that supporting small-scale farmers is a key strategy to improve food security.

III. Empirical Background

As Figures 1 and 2 show, Brazil experienced intermittent growth in its gross domestic product (GDP) and rapid urbanization since the 1970s. While the rural population accounted to 44.2 percent in 1970, it accounted for only 15.3 percent in 2006.

**Figure 1: Brazil’s GDP Growth, 1970-2006**

![Figure 1: Brazil’s GDP Growth, 1970-2006](image)

Figure 2: Brazil’s Rapid Urbanization, 1970-2006
(percent of urban population in total population)


The rural exodus is also reflected in the overall decrease of the agricultural sector relative to GDP. As Figure 3 shows, the share of agriculture decreased from an average of about 12.7 percent during the 1970s to only 6.3 percent during 2000-2006.

Figure 3: Share of Agriculture in GDP, 1970-2006 (in percent)


Despite the decrease in the share of agriculture in Brazil’s GDP, agriculture remains an important development issue for Brazil as about 15 percent of all female employees and about 23 percent of all male employees were in the agricultural sector in 2006. The people depending on agriculture are on average also poorer than those depending on non-
agriculture. In terms of merchandise exports, food exports were as high as 46.3 percent in 1980, dwarfing food imports of 9.6 percent.

One of the most telling statistics is that external debt, which soared from 35.2 percent of gross national income (GNI) in 1982 to 51.5 percent of GNI in 1983. In 1984, Brazil’s external debt rose to its highest level (52.7 percent of GNI) since 1980. This heightened external debt forced Brazil to borrow from international institutions which imposed strict conditions. Patel and Cassel (2003) explain that Brazil adopted its first structural adjustment deal with the IMF in 1982, and then had to make another deal in 1988. The liberalizing measures that the IMF forced on its loans to Brazil drastically reduced the role of the government, especially in agriculture. While trade barriers were lowered to open up Brazilian agriculture to the world market, the government’s price supports, subsidies, credit and marketing services were all taken away. Thus, poor rural farmers lost the ability to compete and were pushed out of the market.

This is supported by the data, which shows that during the late 1980s and most of the 1990s, real prices that producers received for both domestically bought and exported agricultural goods fell to about half of what they were before. It is also reflected in Figure 4 below, which shows that coffee prices took a sharp decline after the liberalizing reforms took place in Brazil and elsewhere, flooding the market with goods and increasing competition to push down prices.4

Figure 4: A. Real Agricultural Commodity Price Trends, 1980-1999
(1980 = 100; deflated by the price index of manufactured exports of industrial economies)

Source: Food and Agricultural Organization of the United Nations (2002), Figure 1-A, p. 221.

4 The International Coffee Agreement, which was a cartel of coffee-producing nations, suspended its price control clause. Immediately after that, coffee prices began to drop dramatically. Brazil and other coffee-producing nations could not agree on export quotas, encouraging all of them to dump their coffee onto the world market, and thus exacerbating the problem. Coffee prices fell to all-time lows in 2004, allowing corporate interests to gain a greater share of coffee’s export revenues, and further reducing the ability of small-scale farmers to compete and survive. As a result, small-scale producers faced decreasing returns to scale; see Watson and Achinelli (2008), pp. 227-229.
Furthermore, the FAO (2002) report identified coffee as the most volatile of all agriculture crop prices between 1986 and 1989. Raw agricultural goods seem to be more vulnerable to market price fluctuations than other goods. The report (p. 219) points out that: “The sluggish demand for primary agricultural commodities and the recurring conditions of boom and slump in their exports have created problems for commodity-dependent economies. Unstable commodity prices and export earnings are well known to make development planning more difficult and to generate adverse short-term effects on income, investment and employment.” Thus, aside from the effect price instability has on small-scale agricultural producers, it also hurts the government’s ability to invest in development. In addition, those that specialize in production of primary commodities will lose their share in world trade unless they have a major cost or quality advantage over their competitors.

As will be shown in more details below, Brazil’s rural poor were disproportionately harmed by neoliberal policies. Rural poverty is now twice as high as urban poverty. Inequality in Brazil also affects the rural population severely. The poorest decile of Brazil’s population gets about 0.7 percent of Brazil’s total income, while the richest decile of the population gets almost 50 percent of Brazil’s total income. Land distribution figures mirror the high income inequality as about 20 percent of the rich rural dwellers own 88 percent of the land (Patel and Cassel, 2003).

IV. Effects and Unintended Consequences of Neoliberal Reforms

IV.1. Effects of Neoliberal Reforms on Brazil’s Coffee Production

Brazilian agriculture has undergone major transitions in the past 30 years, and it is important to understand the history and examine the causation of these trends in order to help support Brazil’s agricultural sector today. Because Brazil is the world’s largest coffee exporter, Watson and Achinelli (2008) chose to examine coffee production in the context of the 1980 neoliberal reforms, to see how these reforms affected small-scale coffee farmers. The neoliberal reforms in Brazil liberalized trade, privatized certain industries and services, intensified agriculture, and reduced or eliminated state-funded interventions. As a result, trade barriers were reduced, foreign investment increased, and transnational involvement increased. These transitions dramatically affected coffee producers.

Governments in South America had intended to capitalize on their comparative advantage in agriculture—with climate, labor, and opposite seasons from the Global North—to increase their agriculture exports and improve the plight of the rural poor. However, these good intentions had the opposite result; market liberalization altered rural livelihoods in a way that favored the large, capital-intensive farmers and marginalized the small-scale farmers and rural poor. It is important to remember that neoliberal reforms affect “[d]istinct social, political, cultural, and environmental contexts”.

For Brazil, the following factors shaped the coffee farmers’ ability to adapt to these neoliberal reforms: the countries longstanding leadership in the global coffee market, the increased mechanization of production, high inequality of land distribution, and the

state’s historical heavy role in the coffee sector. Within this context, Watson and Achinelli (2008, p. 225) deduce that in “attempt to mitigate socio-economic constraints, [small-scale farmers] often inadvertently become enmeshed in a cycle of increased coffee production, land degradation, and poverty.”

With the neoliberal reforms, the government reduced its role in most sectors, but continued to invest in mostly large-scale coffee production, and the supported coffee producers became more efficient (see Watson and Achinelli, 2008, p. 224). For example, the state offered low-interest credit for land and modern inputs, as well as subsidies for modern technology such as tractors, which benefited mostly medium and large scale producers. This is evident as medium to large scale producers received about 66 percent of state credit to expand their landholdings and investment. As a result, those who had enough collateral for credit gained even more of an advantage over smaller productions. According to these coffee policies, the competitiveness of producers and exporters increased, but at the cost of marginalizing small-scale farmers, increasing environmental degradation, and increasing poverty.⁶

The unfortunate consequences of these policies are easy to oversee. From the traditional economic point-of-view, these neoliberal reforms succeeded in reducing the role of the government, opening-up to the global market, and increasing production and efficiency. But these statistics do not tell the whole story, where the rural farmers and their whole communities lose their entire livelihoods, especially as there are no other jobs for them. Traditional economists view the neoliberal reforms positively because of the overall increased efficiency, which means that inefficient producers must fail and exit the market.

Exiting one market and entering another may not seem terrible difficult for those of us who reside in highly complex, industrialized areas. However, forcing entire communities out of work by favoring large-scale farmers, and offering no assistance or guidance for these farmers is devastating. Their knowledge and skills as coffee farmers, which may be the only human capital that community has collected, is now rendered to be useless. This is where neoliberal reforms hurt underdeveloped markets, and where traditional economics should recognize that market imperfections force laborers into economically unproductive, socially devastating unemployment.

IV.2. Unintended Urban Migration

A serious implication of the neoliberal reforms was mass-migration from rural to urban areas. Perz (2000) studies the sources and consequences of this migration. While 44.6 percent of the population lived in rural areas in 1970, the rural population fell to 24.5 percent in 1991. The government focused heavy-capital investment on subsidies of modern inputs, such as fertilizer, tractors, and chemicals rather than focus on land reform, which was highly unequal. Perz (2000) also points out that capital penetration in agriculture reduces land availability and labor demand, thus fueling rural-urban migration. This is because increased productivity and profit opportunity draws the large, mechanized farms to expand production via land expansion, and because of the increased mechanization reduces the need for laborers.

Another reason why the government invested heavily in agriculture and pushed the demand for rural laborers down is the growth of agricultural-related industries. Perz (2000, p. 853) explains, “[d]uring the 1980s, a new linkage further integrated agriculture and industry, as capitalized agricultural operations began to produce crops and livestock to be processed by industry into value-added goods, largely destined for export.” The government’s desire to expand both raw and value-added agricultural exports encouraged it to invest in modern agricultural input, which cut the demand for rural labor even more dramatically.

Again, this policy encouraged large-scale farmers to become more powerful and left small-scale farmers to go out-of-business and move to urban areas for jobs. This has serious implications for the environment also. Not only are modern inputs and large-scale farming considered to be harmful to the environment, but also the urban areas were not planned well enough to absorb the mass migration of people, and poor environmental standards persisted from overcrowding and lack of sanitation (see Perz, 2000, p. 843).

IV.3. **Unintended Environmental Harm**

Unlike the rest of the world which uses shade-grown coffee, Brazil employs a sun-grown coffee strategy with high-yielding modern coffee seed varieties. This is a highly exploitative method. On Brazilian farms, coffee trees are planted in close proximity to one another across steep slopes. The steep slopes which the profit-maximizing farmers chose to work on are precarious because heavy rainfall induces soil erosion of the unstable topsoil from over-planting of coffee trees. Soil erosion limits the average lifespan of a Brazilian sun-grown coffee tree to fifteen years, so every fifteen years, farmers move on to new land.\(^7\)

Intuitively, the pressure on land expansion puts pressure on small-scale farmers to seek new land, which is often done by forest clearing. As a result, the forest coverage next to Brazil’s most important coffee-growing state has been reduced to about 2 percent in the late 1990s. If the international community is serious about issues such as deforestation and environmental sustainability, it must consider the consequences of the economic policies that it pushes onto the developing world.\(^8\)

It is not only the fault of the small-scale farmers who are struggling to make ends meet. The Watson article discusses how farmers have to continue to grow coffee, despite rapidly declining soil fertility and continually decreasing returns. In order to offset the losses from soil erosion, the government proposes quick fixes such as fertilizers, but these are not sustainable fixes and further erode soil in the long run. Economic policies and the structure of agriculture in developing countries affect more than just the world’s rural poor.\(^9\)

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\(^7\) See Watson and Achinelli (2008), p. 228.
\(^8\) See Watson and Achinelli (2008), pp. 228-229.
V. A Broader Critique of Neoliberal Reforms

Brazil was heavily affected by the global recession of 1980. Inflation rose to 100 percent in 1980, and peaked at 1000 percent in 1988. Thus, the international institutions gained influence over Brazil’s macroeconomic policy because Brazil depended on them to finance its external debt and everyday expenditures. Because of the rampant inflation, “[n]ew structural adjustments were implemented, under the guidance of the International Monetary Fund, the World Bank, and the World Trade Organization, to transform the nation from a closed, state-supported economy to a liberalized, market-based economy”.  

The IMF loaned to countries under the conditions that they cut fiscal spending and cut inflation by restricting the money supply. This is contractionary economic policy, used to induce an economic slowdown to curb inflation. Yet this is completely inappropriate for a developing country with a slow growth rate. The IMF made low inflation rates and balanced budget its end objective, while completely ignoring the development of the countries it loaned to. Inflation, as long as it is not in excess, is a sign of economic growth! Thus, inflation is a positive indication that should merely be monitored and slightly maintained. The IMF’s policy to cut inflation and government spending directly harmed the economic growth of its loan recipients, such as Brazil and Ethiopia.

Using Ethiopia as an example, Stiglitz (2002) explains where the IMF went wrong with its approach towards developing countries. When Stiglitz was the World Bank’s Chief Economist and Senior Vice President in 1997, he traveled to Ethiopia to discuss its economic policy. At the time, the IMF had suspended its lending to the government, even though Ethiopia was experiencing growth without inflation, because the IMF worried that if Ethiopia’s foreign assistance dried up that it would have a balance-of-payments crisis and run out of its currency reserves. This is illogical, as Stiglitz points out, because foreign aid cannot contribute to a countries’ reserves; it goes directly to build schools and health clinics, etc.

Another policy item that the IMF pushed developing countries to pursue was financial liberalization. Opening up national markets to the global financial system endangers the local banks. When the IMF forced Kenya to open up its financial markets, fourteen bank failures occurred within the first year, interest rates increased, and the rural residents were unable to buy seeds or fertilizer with the expensive credit that resulted from reform (Stiglitz, 2002, p. 32). These are the types of neoliberal reforms that the hugely influential international finance institutions imposed on the developing world. Intuitively, it is clear that the IMF was acting in its own best interest and in the best interest of the Western world that dominates its board. It is in the IMF’s interest to keep the developing world dependent on its loans with such high interest rates on the loans. The West was profiting off of the developing worlds’ debt.

Globalization today is not working for many of the world’s poor… The problem is not with globalization, but with how it has been managed. Part of the problem lies with the international economic institutions, with the IMF, World Bank, and

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WTO [World Trade Organization], which help set the rules of the game. They have done so in ways that, all too often, have served the interests of the more advanced industrialized countries—and particular interests within those countries—rather than those of the developing world.\(^{13}\)

Furthermore, these international institutions have served the interests of the developed world with a narrow-minded approach that not even Western governments would ever employ. The United States is battling one of the greatest economic recessions in its history and is it employing fiscal austerity and contractionary monetary policy to curb interest rate? No, it is deficit spending and reducing interest rates dramatically so that it may grow its way out of the recession.

**VI. Conclusion**

Based on our analysis, we come to the conclusion that the neoliberal reforms in Brazilian agriculture, adopted in the late 1970s and early 1980s, were illogical and unhelpful. The IMF pushed its policy agenda on the Brazilian government forcefully, and the small-scale rural farmers were hurt the most. Some of the unintended consequences of these reforms were an increase in income inequality and land-holding concentration in Brazil, rapid urban migration, and environmental degradation. Even in recent years, about three decades after the reforms took place, these consequences are apparent in the agricultural structure of Brazil, as inequality and rural poverty persist.

Changes in Brazil’s agricultural policies, which would benefit small-scale farming, would help correct some of these negative consequences of neoliberal reforms. For example, according to Araujo (2009), the Brazilian Institute of Geography published a report in 2009, claiming that small-scale agriculture in Brazil produces over 50 percent of Brazil’s domestic food supply, and that it does so using much less land than modern agribusinesses. The small farms are more productive in terms of land use, and have other important benefits such as employing about 75 percent of rural labor. Araujo (2009) also argues that we must fight to secure the land rights of small-scale farmers, especially because they focus on feeding the domestic population, whereas large agribusinesses focus on exports.

Brazil’s economic reforms affect not only the agriculture sector, but also poverty, inequality and the environment in Brazil. The country should shift away from capital-intensive agriculture production towards small-scale, environmentally-friendly and sustainable strategies in order to reduce rural poverty, increase domestic food security, and improve the environmental conditions within Brazil. If the Brazilian government continues to neglect these problems, environmental degradation and rural decline is likely to cause it to lose both, the long-term ability to export agricultural products and domestic food supply. Hence, Brazil must undertake the hard task of land reform and investment in small-scale and sustainable agriculture.

References


Climate Change in Zambia:
Impacts and Adaptation

Couroche Kalantary

Abstract
This article summarizes the impacts of climate change in Zambia as well as Zambia’s adaptation efforts, both of which are detailed in Zambia’s National Adaptation Programme of Action (NAPA) of September 2007. The article provides also (1) a brief review of the Zambia-specific climate change literature and (2) some empirical background on Zambia’s socio-economic status and Zambia’s agriculture. Among others, the article comes to the conclusion that in addition to international assistance, the Zambian government needs to become more capable of providing some sort of security for its people.

I. Introduction
It is now clear that climate change, which is both an increase in long-term average temperatures as well as an increase in climate variability, is due to an increased concentration of greenhouse gases in the earth’s atmosphere. As documented in the fourth assessment report of the Intergovernmental Panel on Climate Change (2007), the emissions of greenhouse gases have increased by 70 percent from 1970 to 2004, due to human activities. The increased greenhouse gas emissions have led to an increase in the greenhouse gas concentration in the earth’s atmosphere, which traps some of the sun’s heat. The well-observed impacts of this increased greenhouse gas concentration are (a) an increase in the earth’s global average surface temperature, (b) an increase in sea levels, and (c) a melting of the Northern Hemisphere’s snow cover.

As documented by the fourth Global Environment Outlook of the United Nations Environment Programme (2007), another critical observation has been an increase in the frequency and intensity of extreme climate-related disasters during the last four decades. While about 2 billion people were affected by such disasters in the 1990s, a combination of the observed and projected figures for the first decade of the 21st century shows more than 3.5 billion people affected by such disasters. Furthermore, while the climate-related
disasters of the 1990s affected 40 percent of the population in developing countries and only a few percent of the population in developed countries, the climate-related disasters of the first decade of the 21st century affected 80 percent of the population in developing countries while still only a few percent of the developed countries’ population, see Figure 1 below. Given the South & East Asia’s large population, South & East Asia was the worst affected region in absolute numbers; however, Africa was the worst affected region in terms of percentage of its population affected.

**Figure 1: Number of People Affected by Climate-Related Disasters in Developing and Developed Countries**

![Graph showing number of people affected by climate-related disasters](image)

Source: UNEP (2007), Fourth Global Environment Outlook, Figure 8.5, p. 374 [based on data compiled from the Emergency Events Database (EM-DAT)].

This article summarizes the main impacts of climate change in the Republic of Zambia. These impacts include among others a huge decrease in agricultural productivity, a significant increase in the deaths of wild animals, a flooding of some parts of the country, a decrease in tourism, dried out rivers, the risk of Victoria Falls to dry out, and an increased spread of diseases such as malaria due to the increasing number of mosquitoes. The article explains also what Zambia has started doing to help itself overcome these challenges, and what is needed from the rest of the world to minimize the damage of climate change. This article is structured as follows. The next section (Section II) provides a brief review of Zambia-specific climate change literature. Section III provides some empirical background on Zambia, while Sections IV and V analyze, respectively, the main impacts of climate change in Zambia and Zambia’s main adaptation efforts. Section VI provides some conclusions.
II. Literature Review

There are by now various books and many articles which address problems that arise from climate change in Africa. One of the more famous books is the one edited by Pak Sum Low (2005). The literature addressing climate change specifically in Zambia is much thinner and focuses mostly on Zambia’s climate change struggles, mainly in terms of negative impacts on Zambia’s agriculture and food production. The most comprehensive report on climate change in Zambia is Zambia’s National Adaptation Programme of Action (NAPA) of September 2007. The NAPA has been formulated by the Government of Zambia (2007), supported by the Global Environment Facility (GEF) and the United Nations Development Program (UNDP). As stated on the NAPA website of the United Nations Framework Convention on Climate Change (UNFCCC),¹ NAPAs provide a process to identify priority activities that respond to their urgent and immediate needs to adapt to climate change – those for which further delay would increase vulnerability and/or costs at a later stage.

Jain (2006) assessed the economic impacts of climate change on agriculture in Zambia, based on the Ricardian method which measures the effect of climate on the value of agricultural land, though the Ricardian method has been modified by replacing land value with net farm revenue as Zambia has an abundance of free farming land for subsistence farming. A multiple linear regression model with net farm revenue as response variable has been fitted with climate, hydrological, soil and socio-economic variables as explanatory variables. The results indicate that most socio-economic variables are not significant, whereas some climate variables and the corresponding quadratic variables are significant in the model. Further findings are that an increase in the November–December mean temperature and a decrease in the January–February mean rainfall have negative impacts on net farm revenue, whereas an increase in the January–February mean temperature and mean annual runoff has a positive impact.

Riché (2007) undertook a climate change vulnerability assessment based on community consultations in seven locations in Zambia and came to the conclusion that Zambia faces increased risks due to climate change due to a rise in the frequency and severity of extreme events, including droughts, floods and high temperatures, and a decrease in the length of the rainy season.

“The rise in extreme climatic events is negatively affecting the natural, physical, financial, and human resources that are crucial for people’s livelihoods, and is leading to increased food insecurity and health issues. When facing climate hazards, small scale farmers (which are negatively affected by disruption of their normal farming cycles) rely heavily on access to alternative natural resources from forests and wetlands.”²

OneWorld.net (2010) provides a briefing guide on climate change in Zambia, which summarizes the effects of climate change in Zambia and Zambia’s adaptation measures. The guide also looks specifically at deforestation (which it considers to be a key agent in the linkages between poverty reduction, food security and climate change in Zambia) and

¹ http://unfccc.int/national_reports/napa/items/2719.php
the prospects for future electricity access in Zambia (which amounts currently to about 49 percent for urban residents and only 3 percent for rural residents).

Finally, there are by now also many news reports documenting the negative impact of climate change in Zambia. One of the more recent such report has been provided by Smith (2009), who reports on the devastation brought on to Zambia as climate change brought on early flooding and that the Red Cross had warned that global warming will lead to more disasters along the Zambezi river basin. Another, even more recent news report on climate change in Zambia has been provided by the United Nations Development Program (UNDP), which includes both a quick summary of climate change implications, and a video explaining them to increase awareness on the matter.

III. Empirical Background

Zambia is a Sub-Saharan African country with a land area of 752,614 km², though only 34 percent of the land is effectively used for agriculture. The country consists mostly of plateau with an elevation between 950 meters to 1500 meters above sea level. It has a population of about 10 million people, of which 65 percent live in rural areas. Fertility rates remain with an average of 5.3 children per woman very high in Zambia. Child employment in agriculture (age 7-14) constitutes 95.3 percent for females and 96.5 percent for males. The country’s life expectancy is with 41.7 years extremely low. As Figure 2 shows, life expectancy has been decreasing in Zambia for most of the last three decades, partly due to a high HIV/AIDS prevalence rate, which currently stands at about 17 percent.

Figure 2: Life expectancy at birth, total (years), 1980-2008

Source: World Bank (2008) World Development Indicators 2008, CD-ROM, updated with World Development Indicators data as posted by the World Bank on May 2010; data for a few missing years was calculated by the author using simple averages.

Zambia is due to (a) its low income, (b) its low human development, and (c) its high economic vulnerability classified by the United Nations as one of the world’s 49 least developed countries (LDC). Zambia’s latest Poverty Reduction Strategy Paper (PRSP) for 2002-2005 indicated that about 73 percent of Zambians are (based on Zambia’s national poverty line) poor. Figure 3 shows the percentages of Zambia’s population living below PPP$1.25-a-day and PPP$2-a day for all the years such data currently exists. It confirms the severe level of income poverty in Zambia and also shows that overall no progress has been made in reducing income poverty since 1991 (which is the first year for which such data is available).

**Figure 3: Poverty in Zambia, 1991-2004**

![Figure 3: Poverty in Zambia, 1991-2004](image)


Poverty is a multidimensional phenomenon, caused by many factors. Some of the more macroeconomic factors are low savings, low investment and unemployment. Being a Heavily Indebted Poor Country (HIPC), Zambia has recently qualified for debt relief under the Multilateral Debt Relief Initiative (MDRI). Steps such as the *Fifth National Development Plan (FNDP)* are being taken to contribute to the advancement of the Millennium Development Goals (MDGs) and Zambia’s *National Long Term Vision 2030*. However, as shown in Figure 3, these efforts are complicated by the fact that Zambia’s dependence on agriculture has (despite a high volatility of agricultural production) grown in the past few decades. As will be shown in more details in the next section, this dependence on agriculture in the wake of climate change makes the Zambian

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people even more vulnerable to changes in weather conditions, which determine agricultural output.

**Figure 3: Share of Agriculture (value added, % of GDP), 1975-2008**

![Graph showing the share of agriculture in GDP from 1975 to 2008.]


Despite the increased importance of agriculture within the Zambian economy, agricultural has not grown much over the last 30 years (averaging 3.0 percent per year from 1975-2008), largely due to frequent shocks, see Figure 4 below. Since 2000, the average annual growth rate of agriculture has been slightly below one percent.

**Figure 4: Annual Growth Rates of Agriculture (percent), 1975-2008**

![Graph showing annual growth rates of agriculture from 1975 to 2008.]

IV. Climate Change Impacts

IV.1. Impacts on Agriculture

The key climatic hazards Zambia is facing are droughts, floods, and—to some extent—extreme temperatures. All of them have negative effects on agriculture. Excessive precipitation in Zambia’s non-drought prone region, an increased frequency of droughts in the drought-prone regions, and a generally shortening of the growing season affect agricultural production and food security negatively, which then reduces the livelihoods as well as the adaptive capacity of individuals and communities.

- During the agricultural season of 2004/05, two thirds of the country lacked the much-needed rainfalls, creating 120,000 tons of food shortage and 1.2 million starving people until the subsequent year’s harvest. Cotton and tobacco fields, which typically resist drought seasons, have also been affected.

- Floods have also become more recurrent, and even started affecting areas that had never experienced flooding before. Based on Zambia’s NAPA of 2007 (see Government of Zambia, 2007) floods have affected 41 out of Zambia’s 72 districts. The magnitude and timing of the floods also caused problems, as the regions that are used to the floods were caught unprepared by earlier occurrences and higher magnitudes.

Figure 5: Agro-Ecological Map and Crop Suitability Rating for Zambia

Source: Government of Zambia (2007), Figure 1.1, p. 2.
As shown in Figure 5, Zambia has three agro-ecological regions, with Region II split into two sub-regions. Each region/sub-region comes with a different crop suitability rating. Historical baseline data shows that Region I experienced the lowest rainfall over the last 30 years, followed by Regions II and III, respectively. Projections based on historical trends show that Regions I and II will experience lower average rainfalls in the future, while Region III is expected to have an increase in average rainfall. This will impact agricultural production negatively as the first two regions, especially Region I, are already now drought-prone regions.

IV.2. Impacts on Human Health

Beside the lack of food, which has had dreadful impacts on the Zambian population’s health, other factors, enhanced by climate change, are also causing their health to be at risk. Climate changes are predicted to increase mortality levels associated with climate-sensitive diseases. Health in general will also be affected by stress/drought or death/injury due to floods or storms. Factors that contribute to water-born diseases are also increasing. Those factors include water and air quality, temperatures, and the quality and quantity of food. Malaria, being the number one killing disease in Zambia, requires a constant assessment of its status. Floods are expected to have effects as water recedes and stagnates, causing favorable environments for mosquitoes, which will in turn transmit more diseases. Floods also became an important factor leading to water contamination, due to the increased pit-latrines collapses and other similar hazards.

IV.3. Impacts on Wildlife

Climatic situations have a direct effect on animal populations. Cattles, for instance, have reduced in numbers due to the increased temperatures and the lack of food and water. The reduced cattle population will also directly affect the farmers that depend on them for productivity. The increased droughts, which cause fires, soil degradation and fertility loss, have already started impacting forests. Miombo forest, which was known for its fast regeneration, is now at danger. Beside natural resources being threatened, wild animals have started showing changes in behaviors, migrating to other places, suffering from the lack of food, and getting more diseases. Elephants, for instance, are much skinnier than they used to be, and that makes them weaker, threatening their overall survival. The water shortage, as well as for having had a direct impact on fish stocks, has also had disturbing effects on the whole ecological system.

IV.4. Impacts on Zambia’s Economy

It goes without saying that a country dependent on agriculture will suffer economically when its production levels fall low. Getting out of poverty only gets more difficult when the natural environment that the country is dependent on is affected negatively. On top of that, there is no system that provides the population with basic needs or protects them from the impacts of climate change. A large part of the Zambian population is therefore stuck in poverty, relies on international aid and the more wealthy segments of the Zambian population to survive within the changing environment.
IV.5. Projected Impacts of Climatic Hazards

Looking to the future, Zambia’s climate is expected to see an increase in temperatures in Regions I and II as well as an increase in alternating occurrences of drought and floods throughout the country. This will increase the risks of drowning, climate-sensitive diseases, outbreaks of infectious plant, zoonotic and human diseases, the destruction of agricultural crops, roads, housing, power and water supply infrastructure with the concomitant disruption of the accessibility and delivery of health services and relief assistance which will then result in food shortages and an increase in malnutrition or starvation. Climate change will likely also increase the displacement of Zambia’s population and lead to anxiety, depression, and overcrowding.

All other sectors of the economy that depend on Zambian food resources are at risk. The maize industry, for instance, will see difficulties as most of its varieties will not mature because of too short growing seasons. Given that agriculture is such an important part of Zambia’s economy, the resulting food shortages will greatly affect the whole country, as it has already started doing.

Studies have also shown that Zambia’s fish are at danger. Water levels are predicted to lower down in rivers and lakes, consequently affecting the fishing industry. Some fish species such as the breams and sardines, which are the most vulnerable ones, might not survive the environmental change. Some communities also depend on various animals as a source of nutrition. For example, puku, lechwe and waterbucks will impact their surrounding communities when their migrating behaviors will alter due to the changes in rainfall frequencies. Also, higher temperatures and droughts will prevent the forests from regenerating properly. The miombo forest, which covers 60 percent of the territory, is the source of fuel and charcoal for over 80 percent of households. Its condition will therefore have high stakes for all the communities and animals that depend on it.

V. Adaptation Measures

There are many ways by which the people of Zambia have started adapting to climate change repercussions. As the NAPA report describes, many of the strategies used to adapt are alike between different villages. That is simply because most of the problems they are faced with are the same. For instance they deal with the increase in diseases by boiling their water, treating it with chlorine, using traditional medicinal plants and going to medical clinics. To deal with the declining crops and fish stocks, the communities try to diversify by relying on other natural resources. These diversifications depend on the resources available, the level of education, expertise, coordination, and institutional support, which can be different from one community to another. Typical income diversification include charcoal making, fishing, honey and beer production, selling grass and livestock, crafts making, depending on the situations and resources available. To acquire food, villagers often need to trade commodities.

To deal with drought, selling fewer crops to keep more for household consumption becomes common. Furthermore, shifting agricultural production from highlands to lower lands, planting crops earlier, incorporating crop residues instead of burning them, growing more drought resistant crops, crop rotating, intercropping, cover cropping,
irrigating, sinking wells, and walking longer distances to get water are all adaptation strategies that are taking place in Zambia.

When faced with floods, adaptation measures include gathering and selling wild food, as well as the shifting of agricultural production, livestock and houses to higher lands, burying ditches to prevent waterborne diseases, evacuating early when water levels are known to increase, improving drainage around houses, putting plastic on top of houses, and building shelters to compensate for destroyed houses.

When rainy seasons are shorter, coping strategies such as using bed-nets and repellents for mosquitoes, working earlier in the morning, buying medicines for cattle, using zero-grazing for some animals, as well as other adaptation strategies applicable to drought and floods situations are put into place.

All of these coping strategies are basic ways to deal with each of the issues to some extent. But there is only so much that individuals or communities can do to adapt to climate change. There is a strong need for national and global strategies to take place to reduce further damages. By sorting each region by their needs, national plans can be made to more effectively adapt to the imminent changes, and help agriculture, fishery, livestock production, human health, and natural resources. The NAPA made a list of options that would all help the different issues Zambia is facing. From those options, the most prioritized ones are:

- Strengthening of early warning systems to improve services to preparedness and adaptation to climate change in all the sectors (agriculture, health, natural resource, and energy).
- Promotion of alternatives sources of livelihoods.
- Adaptation of the effects of drought in the context of climate change in Zambia’s agro-ecological region I.
- Management of critical habitats.
- Promote natural regeneration of indigenous forests.
- Adaptation of land use practices (crops, fish and livestock) in light of climate change.
- Maintenance and provision of water infrastructure to communities to reduce human-wildlife conflict.
- Eradication of invasive alien species.
- Capacity building for improved environmental health in rural areas.
- Climate-proofing sanitation in urban areas.

VI. Conclusion
Zambia is one of the most affected countries by climate change. Drought, floods, and higher temperatures are all environmental factors that are extremely difficult to deal with, especially in a poor country like Zambia. Despite ambitious policy statements, Zambia
has virtually no hope of getting out of poverty on its own. Though the international community is willing to provide some support, there are many issues that need to be addressed in order to improve the living standards of the Zambian population. Ideally, apart from the adaptation measures listed above, the Zambian government needs to become more capable of providing some sort of security for its people. There needs to be some kind of safety net, securing the people from what would otherwise lead to diseases and death. It is obvious from the many issues related to climate change adaptation and poverty reduction that there is no single solution. It is rather a long list of issues that need to be addressed, in order to address the country’s needs from many angles and would then synergistically improve Zambia’s dire situation.

References


The Caste System: Effects on Poverty in India, Nepal and Sri Lanka

Jasmine Rao

Abstract
Though mostly outlawed, the caste system continues to be one of the key drivers of poverty and inequality in South Asia. This article reviews the linkage between poverty and the caste system in India, Nepal and Sri Lanka. It also discusses the situation of the so-called Dalits (untouchables), which are typically considered to fall outside of the caste system. In addition to secondary evidence based on recent literature analyzing the relevance and impact of the caste system on poverty, the article is also based on an interview with a young male Indian, who experienced the impact of the caste system as well as the impact of the recently adopted reservation system for India’s Dalits.

I. Introduction
In India, as well as other countries in South Asia like Nepal and Sri Lanka, the caste system has been a large part of society and still remains, though to a lesser extent, to be a part of society. This may be in an official or unofficial sense because most South Asian countries have either outlawed the caste system or are trying to move away from it. The caste system is basically a way of dividing people into different social classes, beginning with Brahmins as the highest (Priests and teachers), Kshatriyas (warriors and rulers), Vaisyas (farmers, merchants, and artisans), and Sudras (laborers); see Figure 1. Untouchables, also known as Harijans or Dalits, fall outside of the caste system all together. These were the original caste groupings as made clear by one Hindu Holy Scripture called the Bhagvad Gita.

Initially, the system was created “to promote the harmonious workings of society”, but eventually, it has—mostly through corruption—reached the prejudice and discrimination-filled system it is today (Kar, 2007). This corruption began with Colonialism and has had a profound impact on the modern day caste system. It is thought that “Indian society was highly fragmented into communal groupings that served as centers for social identity. In trying to make sense of these groupings, the Portuguese first suggested caste identities. The British expanded on that idea to promote order in Indian society” (Pye, 2002, p.
The caste system seems to have played a large part in creating poverty in India as well as in Nepal and—to a lower extent—in Sri Lanka.

![Figure 1: The Caste System](source: Kumar (2006))

This article is structured as follows. The next section provides a brief review of the literature. The third section provides some empirical background on poverty in South Asia and especially India. The subsequent three sections (IV-VI) review the linkage between poverty and the caste system, in India, Nepal and Sri Lanka, respectively. The last section provides some conclusion.

II.  Brief Literature Review

There is a large amount of literature on poverty and the caste system in India. The sources often describe the link between the two. There are also many sources solely focused on poverty and solely focused on the caste system in India without linking them. However, there is not much literature about the effects of the caste system on South Asia as a whole. Information is also scarce when dealing with the caste system’s effects in specific South Asian countries other than India. There are a few sources that focus on the caste system’s effects in Nepal and Sri Lanka, though they do not contain a lot of empirical data.

Edited by Chaudhary (2005), there is a set of five volumes on *Human Rights and Poverty in India*, addressing a variety of theoretical issues and empirical evidences. The 94 papers in these five volumes analyze the interface between human rights and poverty, with particular reference to India. Dealing with conceptual theoretical and philosophical dimensions of poverty and human rights, they address a wide range of issues pertaining to the situation of human rights and poverty among different social groups in different states of the country. Various contributions provide information on the history of poverty in India as well as the consequences of such poverty. The contributions attempt to analyze how poverty accelerated in India and the complications in trying to end it.
Overall, the five volumes come to the conclusion that the case system is one of the factors that has contributed to poverty as well as complicated the process of alleviating poverty in India.

Silva and Hettihewage (2001) focus on poverty, social exclusion and the impact of selected legal measures against caste discrimination in South Asia. They analyze how the lowest caste is looked at in terms of how they are affected by their position in society and discuss the issues involved with the reservation system in trying to help the untouchables get out of poverty. Based on their analysis, they conclude (p. 69) that “[e]ven though the caste system primarily encompasses a value system applicable to ritual domain and social relations, it also determines the relative worth and level of dignity of human beings, affecting their overall position including their livelihood security, freedom, and adaptation to a modern market economy.”

Rose (1967) discusses the effects of various sociological factors such as joint family, caste system and Hindu religious values on economic development in India. He also provides possible solutions for increasing economic efficiency.

Kar (2007) wrote an article on religion and the roots of India’s caste system for the New York Times, in which he reported on the origins of the caste system. He discussed what the Hindu scriptures say about caste as well as what the caste system actually turned out to be. The Gita, which is one of the Hindu scriptures, states that caste is not determined by birth but by behavior. However, today people’s castes are determined as soon as they are born signifying an outside influence on the modern day caste system.

With regards to Nepal and Sri Lanka, the literature on linking poverty and caste is very thin. Shrestha (2002) offers some insights on how Dalits in Nepal are discriminated against. Heitzman (1990) discusses the history of the caste system in Sri Lanka and how the Portuguese and the British played a part in shaping it into what it is today in Sri Lanka. Heitzman also describes the impacts of caste on the lives of low caste citizens in Sri Lanka.

III. Empirical Background

South Asia is one of the most poverty ridden regions in the world. Although the poverty rate (defined as the percent of people living below $1.25-a-day) has decreased from about 60 percent in 1980 to 51.7 percent in 1990 and to 40.3 percent in 2005 (see Figure 2), there were still about 600 million poor people trying to make a living in South Asia.

Specifically in India, there are still 350 million people who live on less than one dollar-a-day (Waldman, 2005). As of 2005, the country ranks 127th out of 177 countries on the United Nations Human Development Index (HDI), which measures life span, education and living standard. Nearly half of India’s children are undernourished, a level worse than sub-Saharan Africa (see Waldman, 2005). These horrible conditions are magnified by the fact that India has such a large population (over 1.1 billion people), which is growing at 1.4 percent a year; see Table 1. This adds more competition to the workforce as well as puts extra strains on families by forcing them to provide for more people. Although this is definitely a factor in the continuing poverty in India, the caste system that had been present for hundreds of years had a large role in creating these poverty rates.
**Figure 2: Progress with Reducing Poverty in South Asia**
(Percent of population living below $1.25-a-day, 1990-2005, and forecast for 2015)

![Graph showing progress in reducing poverty in South Asia](image)

Source: Extract of MDG 1 Figure 1 (Poverty rates by region, based on new PPPs) of World Bank (2009a), Annex, p. 204.

**Table 1: India: Selected Statistics**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>1,110</td>
</tr>
<tr>
<td>Surface Area (thousands of sq km)</td>
<td>3,287</td>
</tr>
<tr>
<td>Gross National Income (GNI) (billions of US$)</td>
<td>909</td>
</tr>
<tr>
<td>GNI in PPP (billions of US$)</td>
<td>2,726</td>
</tr>
<tr>
<td>Population Growth (%)</td>
<td>1.4</td>
</tr>
<tr>
<td>National Poverty Rate (% of population)</td>
<td>29</td>
</tr>
<tr>
<td>GNI Per Capita (US$)</td>
<td>820</td>
</tr>
<tr>
<td>GNI Per Capita PPP (US$)</td>
<td>2,460</td>
</tr>
</tbody>
</table>


**IV. The Caste System in India**

**IV.1. Economic State of Untouchables in India**

The caste system that was established in India forced many people who belong to the lower castes into poverty. There are approximately 180 million to 220 million people who are considered to be in the lowest caste in India (Ninian, 2008). These lower castes or “Dalits” (broken people) are essentially shunned from society (Thekaekara, 2005). It is not that they have earned such isolation, they “experience absolute exclusion from the cradle to the grave” (Thekaekara, 2005).
Many are forbidden to hold jobs because their caste may be one of an untouchable, or a person with basically no rights. Out of the 180-220 million Dalits, 40 million are essentially doing slave labor because they must work off the debts of their ancestors (Ninian, 2008). These people are taught to expect nothing in life but to work all day in the sun and hope that someone will buy their labor or produce, which is in fact uncommon because those of higher castes often refuse to touch anything an untouchable has touched. This practice is due to the reasoning that people feared that even a simple glance at an untouchable could pollute your standing in a higher caste position and aid in the eventual downgrade of caste in the next life (Standing, 2007). Because of this discrimination and work bondage, it is difficult for many people of a lower caste to have a steady income, therefore keeping them in extreme poverty.

Another rule within the caste system is that you cannot marry outside of your caste. This notion has helped in preserving the poverty level in India as well. Although India has supposedly denounced the caste system currently, the people still unofficially go by this marriage rule because of social pressures (Banerjee et al., 2009). Evidence of this comes from the first hand experience of a 24-year old male graduate student who was born and raised in south India. He belongs to the Kamma caste which is a sub-caste of the Brahmin caste. Based on an interview with him, it seems that the first thing that is taken into consideration when looking for a mate is still their caste. When he was asked why people still sought out same caste partners even when the caste system is eroding, he stated that people are simply expected to do so because that is how it has been done for years. He continued to explain that society itself is structured to keep this tradition going. For example, he stated that when taking tests in Indian schools, just as Americans put down their race, there is a place to mark which caste you are. On such forms there is no option that says mixed caste. So it is almost a hassle to move away from the norm because then confusion such as which caste to mark on official forms will come up. For small inconveniences like these, a whole nation sticks to the same caste. This creates a very tough situation for people in lower castes. The inability to marry a person from a different caste further traps the many people in lower castes within their poverty ridden state.

IV.2. Reservation System Established to Alleviate Poverty

Today India has rejected the caste system and is trying to shed the effects. Currently there is a reservation system in India for the lowest caste that is much like affirmative action policies in the US. For many of India’s poorest people, the reservation system means a hopeful future. As mentioned earlier, there is already the ever present high population condition which already hinders the integration of Dalits and threatens the very idea of successful integration of the Dalits into the rest of society.

The social and economic conditions in India make it difficult for people to find jobs, especially due to an overcrowded population. On top of this general situation, there is still the unfortunate circumstance of the hundreds of years in which the lower castes were denied proper education, if they were allowed any education at all for that matter. In light of this outright disability, the lower castes will not have been as adequately prepared as people within higher castes for competing for the same jobs. Therefore the people within higher castes would receive the job, leaving lower castes to stay hidden and forgotten in
the shadows of India’s filthy gutters. In other words, they would be back to square one and they will be living their lives as if nothing has changed.

Figure 3 shows the decrease in poverty rates from 1950 to 2005, of which a part can be attributed to moving away from the caste system as well as the reservation systems that were created in order to give the lower castes more access to education and jobs which were previously reserved for higher castes. Since the caste system was removed, Dalits were able to have more job opportunities, therefore opening up more income possibilities. Due to higher incomes, many people were able to pull themselves out of poverty. Since Dalits make up 16 percent of India’s population, this may account for the large dip in poverty, especially in more recent decades.

Figure 3: Poverty in India (1950-2005)


An interesting twist on the long-term positive effects Dalits experienced due to the removal of the caste system is that there seem to have been some initially negative effects. Silva and Hettihewage (2001, p. 69) reported that “[i]n so far as such measures have the unintended consequence of removing whatever protection and social security was provided by the caste system (converting cooperation into conflict and trust into mutual suspicion in the process) without creating alternative structures of social welfare, they may be expected to enhance poverty and vulnerability at least in the short term.”

Another drawback of trying to get rid of castes and caste discrimination is that it has negatively affected some of the middle and upper classes as many young people in higher castes are – due to the reservation system – not getting into schools or jobs the previous generation got easily. Based on the above mentioned interview with a 24-year old male graduate student, there seems to be a large amount of reservations for lower castes to get into certain schools or to attain certain jobs. The graduate student recalled that when he was in high school studying to get into college, one of his classmates spent day and night studying to get a top score he expected will allow him to get into a top rated medical college. Unfortunately for him, there were a large amount of reservations for Dalits and he did not get accepted. Later on the graduate student found out that the same person decided to get a government job, but remained unemployed for some time due to a high
percentage of reservations for such government jobs. Stories like these are becoming common.

V. The Effects of Caste System in Nepal

Nepal is another South Asian country known to have a caste system. Nepal is also the poorest country in South Asia, with an overall poverty rate of 31 percent, 10 percent in the urban areas and 35 percent in the rural areas (World Bank, 2009b). Many of Nepal’s poor are Dalits, which is cause for major concern. Table 2 breaks down the Nepalese Dalit population by sex and regions as of 2001.

Table 2: Disaggregated Dalit Population by Sex in Nepal in 2001

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Caste</th>
<th>Total Dalit Males</th>
<th>Total Dalit Females</th>
<th>All Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>Hill and Mountain Dalit</td>
<td>852,287</td>
<td>908,378</td>
<td>1,760,665</td>
<td>58.11</td>
</tr>
<tr>
<td>1.</td>
<td>Kami</td>
<td>432,937</td>
<td>463,017</td>
<td>895,954</td>
<td>29.57</td>
</tr>
<tr>
<td>2.</td>
<td>Damai</td>
<td>188,329</td>
<td>201,976</td>
<td>390,305</td>
<td>12.88</td>
</tr>
<tr>
<td>3.</td>
<td>Sarki</td>
<td>153,681</td>
<td>165,308</td>
<td>319,989</td>
<td>10.53</td>
</tr>
<tr>
<td>4.</td>
<td>Badi</td>
<td>2,152</td>
<td>2,290</td>
<td>4,442</td>
<td>0.15</td>
</tr>
<tr>
<td>5.</td>
<td>Gaine</td>
<td>2,857</td>
<td>3,030</td>
<td>5,887</td>
<td>0.19</td>
</tr>
<tr>
<td>6.</td>
<td>Sunar</td>
<td>72,331</td>
<td>72,757</td>
<td>145,088</td>
<td>4.79</td>
</tr>
<tr>
<td>7.</td>
<td>Chunar</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>B.</td>
<td>Tarai Dalit</td>
<td>563,017</td>
<td>532,984</td>
<td>1,096,001</td>
<td>36.17</td>
</tr>
<tr>
<td>8.</td>
<td>Bantar</td>
<td>18,139</td>
<td>17,700</td>
<td>35,839</td>
<td>1.18</td>
</tr>
<tr>
<td>9.</td>
<td>Chamari</td>
<td>136,878</td>
<td>130,783</td>
<td>269,661</td>
<td>8.90</td>
</tr>
<tr>
<td>10.</td>
<td>Chilcimmar</td>
<td>6,516</td>
<td>5,780</td>
<td>12,296</td>
<td>0.41</td>
</tr>
<tr>
<td>11.</td>
<td>Santal/ Sattar</td>
<td>21,515</td>
<td>21,183</td>
<td>42,698</td>
<td>1.41</td>
</tr>
<tr>
<td>12.</td>
<td>Doom</td>
<td>4,631</td>
<td>4,300</td>
<td>8,931</td>
<td>0.29</td>
</tr>
<tr>
<td>13.</td>
<td>Dushadha/Paswan</td>
<td>82,173</td>
<td>76,352</td>
<td>158,525</td>
<td>5.23</td>
</tr>
<tr>
<td>14.</td>
<td>Dhobi</td>
<td>38,350</td>
<td>35,063</td>
<td>73,413</td>
<td>2.42</td>
</tr>
<tr>
<td>15.</td>
<td>Halkhor</td>
<td>1,848</td>
<td>1,773</td>
<td>3,621</td>
<td>0.12</td>
</tr>
<tr>
<td>16.</td>
<td>Jhangra</td>
<td>20,892</td>
<td>20,872</td>
<td>41,764</td>
<td>1.38</td>
</tr>
<tr>
<td>17.</td>
<td>Khatri</td>
<td>38,643</td>
<td>36,329</td>
<td>74,972</td>
<td>2.47</td>
</tr>
<tr>
<td>18.</td>
<td>Lohar</td>
<td>42,270</td>
<td>40,367</td>
<td>82,637</td>
<td>2.73</td>
</tr>
<tr>
<td>19.</td>
<td>Musar</td>
<td>88,041</td>
<td>84,393</td>
<td>172,434</td>
<td>5.69</td>
</tr>
<tr>
<td>20.</td>
<td>Sattar</td>
<td>21,515</td>
<td>21,183</td>
<td>42,698</td>
<td>1.41</td>
</tr>
<tr>
<td>21.</td>
<td>Talma</td>
<td>39,606</td>
<td>36,906</td>
<td>76,512</td>
<td>2.53</td>
</tr>
<tr>
<td>C.</td>
<td>Newar Dalit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>Chyame</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>23.</td>
<td>Kasai</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>24.</td>
<td>Kuche</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>25.</td>
<td>Kusule</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>26.</td>
<td>Pode</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>D.</td>
<td>Unidentified Dalit</td>
<td>85,063</td>
<td>88,338</td>
<td>173,401</td>
<td>5.72</td>
</tr>
</tbody>
</table>

Source: [http://www.hurights.or.jp/asia-pacific/no_30/04.htm](http://www.hurights.or.jp/asia-pacific/no_30/04.htm), based on Table 16 of Nepal’s National Census 2001 (NA stands for not available).
Hill and Terai Dalits are the poorest of the Dalit population with a poverty rate of 46 percent (World Bank, 2009b). Although these rates are high, they have gone down from previous years. One reason for the Dalits’ high poverty rate is job segregation. Dalits are assigned to low-income jobs, including blacksmiths, goldsmiths, tailors, shoemakers and street cleaners. Also, it is often the case that Dalit women and Dalit children are forced to work as servants for their landlord without much of a wage. Then there are the Dalits who are working in Haliya Pratha (bonded labor) or Khala Pratha (forced labor) who have no wage at all. Hence, this accounts for why the poverty rate is so high and why it is not decreasing as much despite Nepal is trying to move away from the caste system (Shrestha, 2002).

There are many other rights that Dalits in Nepal do not have and traps them in poverty. One is a lack of a sufficient education. There are many instances where the teachers do not pay attention to their Dalit students. When lunch time comes and Dalit students want to buy food from school, they are isolated in separate lines. Also, in certain remote areas of Nepal, Dalit students are not allowed to sit next to a high caste students in class. Without an equal opportunity in education, Dalit students have a disadvantage in getting jobs, which implies that they have less of a chance on having an income (Shrestha, 2002).

Another right that Dalits in Nepal do not have is the right to the same amount or participation in government that every other Nepalese person has. Government officials, who are supposed to listen and help out the citizens of their country, are known to completely ignore Dalits. If Dalits somehow are addressed by officials then they are often insulted. When a Dalit person needs a certain service form the government, the government often delays the process in their cases (Shrestha, 2002).

VI. The Effects of the Caste System in Sri Lanka

Another country that has a caste system is Sri Lanka. Table 3 states a few statistics on poverty in Sri Lanka. About 23 percent of the people in Sri Lanka live below the poverty line (World Bank, 2009c). Around 6.6 percent of the people live below $1-a-day and 45.4 percent of the people live on or below $2-a-day. Many low caste individuals in rural areas are being left out of the economic benefits that other people in Sri Lankan society are getting (World Bank, 2009c). Just as it is the case in India, low caste individuals are only allowed to have certain low-paying, low-status jobs. Many people in Sri Lanka of a low caste are agricultural laborers, clothing washers, or waste processors.

<table>
<thead>
<tr>
<th>Table 3: Sri Lanka: Selected Poverty Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Development Index</td>
</tr>
<tr>
<td>Probability of $1-a-day measurement</td>
</tr>
<tr>
<td>Probability of $2-a-day measurement</td>
</tr>
<tr>
<td>Probability at birth of not surviving to age 40</td>
</tr>
<tr>
<td>Life expectancy at birth</td>
</tr>
<tr>
<td>Adults Literacy rate</td>
</tr>
<tr>
<td>Youth literacy rate</td>
</tr>
<tr>
<td>Infant mortality rate (per 1000 live births)</td>
</tr>
<tr>
<td>Maternal mortality rate (per 100,000 people)</td>
</tr>
</tbody>
</table>

Source: [http://www.unsiap.or.jp/participants_work/cos03_homepages/group3/poverty1.htm](http://www.unsiap.or.jp/participants_work/cos03_homepages/group3/poverty1.htm)
There are various rules that lower caste members in Sri Lanka must follow. These rules set them apart from society and reaffirms how worthless they are deemed by the rest of society. Sri Lankan low caste people are required to formally greet people in higher castes, signaling the higher cast’s importance and the lower cast’s insignificance (Heitzman, 1990). This is carried out even to the point of removing head gear in the presence of high caste members as if they are royalty (Heitzman, 1990).

The difference in Sri Lanka from India and Nepal is that caste is not as large a part of society. Outside of these certain formal behaviors, people do not refer to caste outside of the home. Employment opportunities are not restricted to certain castes and in places like factories and business offices, people of different castes talk and joke relatively freely (Heitzman, 1990). Also, while people of higher castes are usually wary of even touching someone with a lower caste in India and Nepal, in Sri Lanka people of all different castes squish together on buses without thinking twice (Heitzman, 1990). There is much poverty in Sri Lanka due to the caste system, though it is less severe than in India or Nepal as Sri Lanka is more open to inter caste relations.

VII. Conclusion

When examining the caste system’s effects in India, Nepal and Sri Lanka, there are certain patterns that exist and can be linked to poverty. In each nation, the people in lower castes are assigned menial jobs. This helps in explaining why there is so much poverty. These lower caste members are not allowed to move up the career ladder and instead remain poor. There also are additional country-specific restrictions with various degrees that further the exclusion-poverty cycle in these three countries.

When comparing the three countries, it seems that Nepal is the most poor, with 31 percent of its people below the poverty line. Sri Lanka is with 23 percent of its people living below the poverty line the least poor, while India is with 29 percent of its people below the poverty line in the middle. This reflects how each country deals with the caste system. Nepal seems to be the most restrictive in giving rights to Dalits, while Sri Lanka seems to have the best caste relations as well as the least job restrictions across the three countries.

Silva and Hettihewage (2001, p. 70) phrase the situation well when they say that by “bringing the socially excluded into mainstream society, and ensuring their fundamental human rights in the process, they are likely to help overcome poverty and deprivation among the disadvantaged in society.” Hopefully India, Nepal, and Sri Lanka will disassociate themselves further from the caste system and as a result reduce poverty.

References


