

# **The Effect of Education on Brazil's Economic Development**

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## **Abstract**

*Due to robust economic growth, Brazil has become an economic powerhouse in both Latin America and the developing world. Despite recent success, inequality still persists at surprisingly high levels. The substandard education system is a contributor to this inequity; however, education reform also represents one of the most effective tools for further growth and a more equal distribution of income. This article investigates how Brazil's failure to raise school learning standards incurs negative long-term effects and outlines the economic benefits of a higher quality education. It reviews the demographic window of opportunity, especially with regards to education, the links between poor education, poverty and inequality, and how inequities hamper economic growth. Finally, the article examines the successes of recent education reforms and how more efficient social spending could bolster economic growth.*

## **I. Introduction**

Brazil is arguably the preeminent economy in Latin America. As the fifth largest country in the world (in both land area as well as population), Brazil benefits from vast natural resources and human capital. Largely, the exploitation of both these resources has spurred substantial economic growth in the past forty years.<sup>1</sup> However, human development has not risen proportionally to economic growth. Furthermore, though average gross domestic product (GDP) per capita has increased over the years, inequality remains at surprisingly high rates.<sup>2</sup> A significant contributing factor to persistent income inequity is the low attainment and low quality of education in Brazil.

Abadzi (2007) points out that most Brazilian children attend both primary and secondary school, but suffer from some of the highest rates of grade repetition and dropout rates in the world as well as high disparities in the quality of education across rural and non-rural populations. Furthermore, Abadzi (2007) explains that Brazilian schools suffer from several systemic issues: Too much time is spent on organization, which wastes valuable classroom time. Additionally, teachers are often

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<sup>1</sup> Central Intelligence Agency (CIA) (2011) World Factbook.

<sup>2</sup> Cunningham and Jacobsen (2008).

absent or off task, diminishing students' ability to concentrate on difficult material. Together, the problems of absenteeism and time mismanagement often result in Brazilian children dropping out, failing classes, and graduating without being able to read at an adequate level.

Investment in quality education is imperative to continue economic growth. Brazil currently is undergoing a demographic window of opportunity, and dependency ratios are projected to fall until 2025.<sup>3</sup> To foster a healthy, educated workforce, policymakers must make more investments in effective education methods. Brazil spends about the same percentage of GDP on public education as other Latin American countries; however, gross inefficiencies in the education system undermine this investment.<sup>4</sup> Moreover, there is increasing evidence that education has strong economic returns and constitutes a major source of development.<sup>5</sup> Reforms that demand more efficient use of time and enhance the quality of education are absolutely necessary to sustain growth.<sup>6</sup> This paper focuses on current failures in the Brazilian education system, and possible policy implications that can bolster development. It shows that an education reform is key to Brazil's economic development.

## II. Brief Literature Review

As an emerging economy, much research concentrates on Brazil's economic development. A wide variety of publications also discuss the economic benefits of a higher quality education, demographic shifts, systemic failures in the education system, and policy implications to correct resulting inefficiencies. The following four publications are some of the most recent and most comprehensive research papers related to these issues, either referring or focusing on Brazil.

- A World Bank policy research paper "Absenteeism and Beyond: Instrumental Time Loss and Consequences" written in 2007 by Helen Abadzi, analyzes systemic problems in education in several countries including Brazil. Her findings reveal a trend in developing nations: teachers are often absent from their posts and use their time inefficiently. Further investigation suggests that these practices have social ramifications that undermine economic growth. More importantly, the paper has a thorough discussion of policy implications that encourage better teaching pedagogies as well as recommendations for decreasing rates of absenteeism. It also outlines both systemic failures and policy tools that may improve the quality of education.
- Another 2007 World Bank policy research paper by Eric A. Hanushek and Ludger Wößmann explores the link between educational quality and economic growth. According to their analysis, policies that aim to improve education systems in developing nations have significant economic returns. The authors find that long-term reforms to education will substantially increase GDP compared to countries that make no changes. Additionally, the research establishes that quality of education has more implications on economic growth than merely increasing the quantity of schooling. Finally, the report provides several broad policy initiatives that help students acquire cognitive skills and increase teaching quality. The claim of this report rests heavily on these findings, asserting that education is among the most important investments the Brazilian government can make to sustain economic growth.

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<sup>3</sup> Queiroz and Turra (2010).

<sup>4</sup> Queiroz and Turra (2010).

<sup>5</sup> Abadzi (2007).

<sup>6</sup> Abadzi (2007).

- Bernardo L. Queiroz and Casio M. Turra’s (2010) report, entitled “Window of Opportunity: Socioeconomic Consequences of Demographic Changes in Brazil” discusses recent economic growth in Brazil in relation to population dynamics. Queiroz and Turra attribute a large working age population and falling dependency ratios as significant causes of recent growth. However, if Brazilian policymakers fail to reallocate public funds to help younger generations, the economy will miss a rapidly closing demographic window of opportunity. The analysis suggests that education reform is paramount to continue economic development and action must be immediate.
- Finally, the analysis by Alain de Janvry, Frederico Finan and Elisabeth Sadoulet (2006) is helpful in assessing the efficacy of cash transfer programs in Brazil. The paper provides a framework for how the policies are implemented and illustrates how the program increases attendance and decreases dropout rates. It comes to the conclusion that Brazil’s cash transfer programs are an efficient use of government money that has the potential to alleviate poverty and that further policy innovations should follow these types of programs.

### III. Empirical Background

Brazil’s GDP has grown dramatically over the past 40 years, reaching close to US\$1.6 trillion in 2009.<sup>7</sup> However, as shown in Figure 1, growth rates have been highly volatile and were low in the 1980s and 1990s. Whereas annual GDP growth averaged 7.3 percent between 1961 and 1980, it averaged only 2.1 percent during 1981-2000, before accelerating again during 2000-2009.

**Figure 1: Brazil’s GDP Growth, 1961-2009**



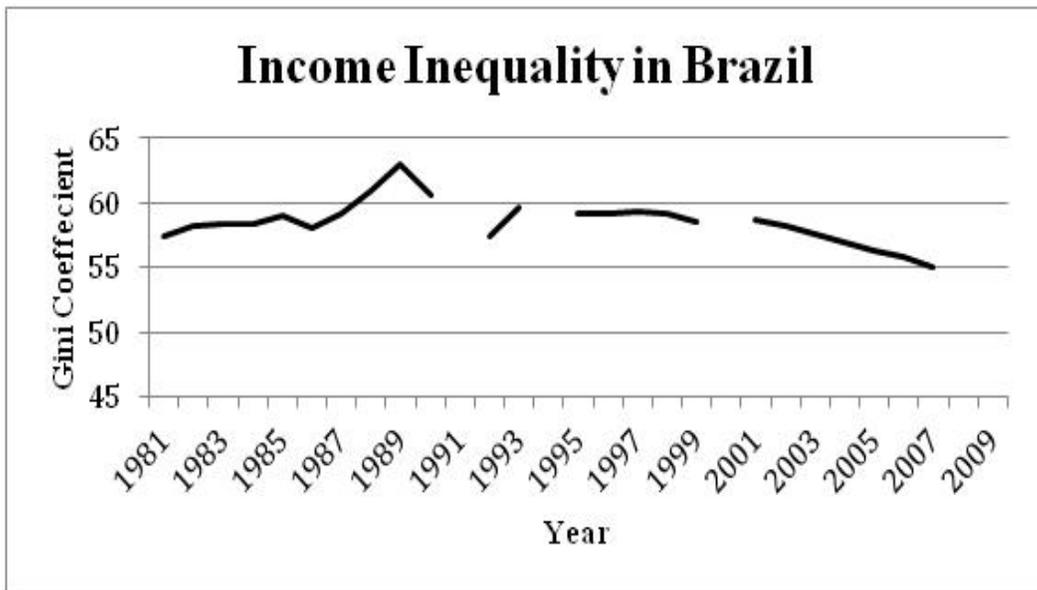
Source: Created by author based on World Bank (2011) *World Development Indicators* (as posted on the World Bank website; downloaded on June 7, 2011).

<sup>7</sup> World Bank (2011).

Several factors had caused the slowdown during the 1980s and 1990s. First, the Brazilian government had accrued massive amounts of public debt, which discouraged investment.<sup>8</sup> Second, as shown in Figure 2, income inequality (measured by the Gini index) rose sharply during the 1980s. Despite some reduction in inequality during the last two decades, Brazil is today the 12<sup>th</sup> most unequal society in the world.<sup>9</sup>

Under the direction of President Fernando Henrique Cardoso (1995-2002) and President Luiz Inacio Lula da Silva (2003-2010), Brazil has brought inflation under control and achieved significant financial stability. Additionally, growth was facilitated by both diversifications in the industrial sector as well as an advanced agricultural sector. These improvements created more confidence for foreign investors and spurred an overall increase in international trade. Because of this modernization, Brazil is currently considered a key force in the global economy and is expected to be a leading country in the future.<sup>10</sup>

**Figure 2: Income Inequality in Brazil, 1981-2009**



Source: Created by author based on World Bank (2011) *World Development Indicators* (as posted on the World Bank website; downloaded on June 7, 2011).

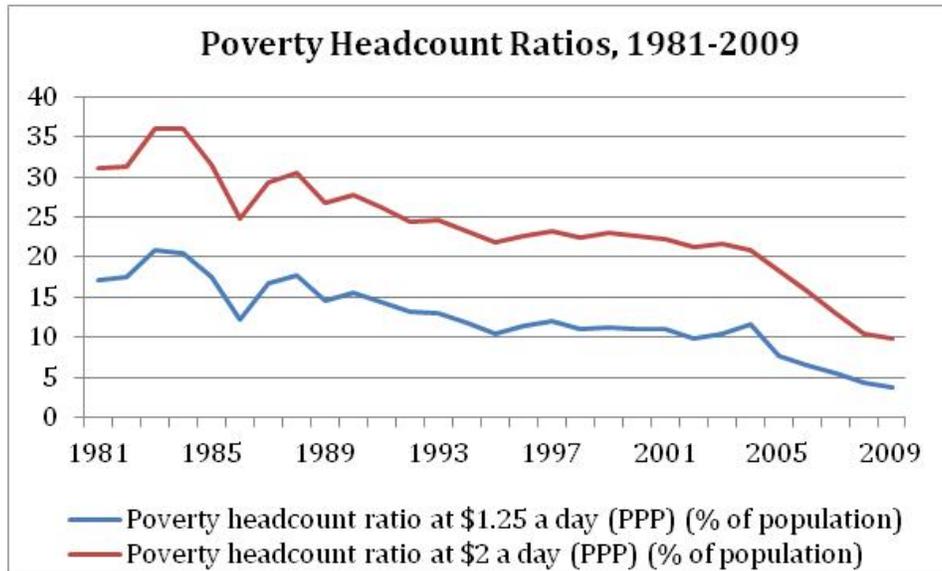
Despite the large gap in income between the rich and the poor, absolute poverty has decreased significantly during over the past 30 years, and especially since 2004. In purchasing power parity (PPP), the percentage of the population living below \$2 a day has dropped from more than 35 percent in the early 1980s to 9.9 percent in 2009, and the percentage of the population living below \$1.25 a day has dropped from more than 20 percent in early 1980s to 3.8 percent in 2009.

<sup>8</sup> Queiroz and Turra (2010), p. 5.

<sup>9</sup> CIA (2011) World Factbook.

<sup>10</sup> Throssell (2010).

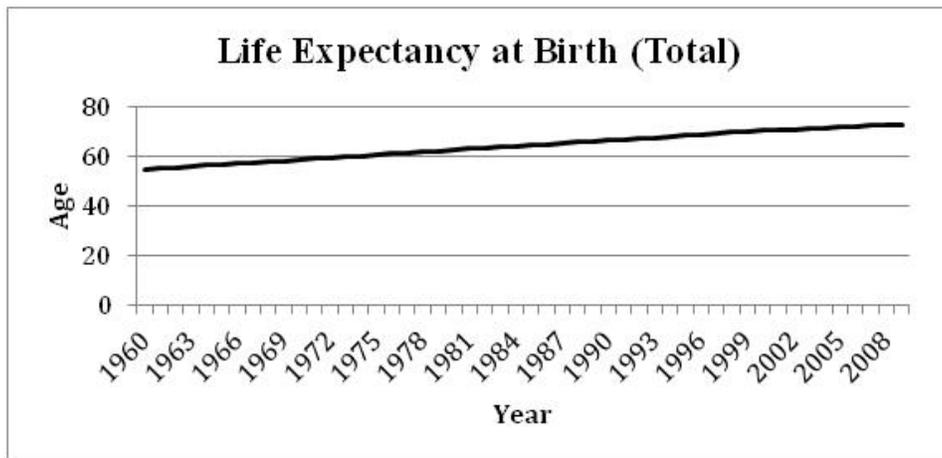
**Figure 3: Poverty Headcount Ratios (in percent), 1981-2009**



Source: Created by author based on World Bank (2011) *World Development Indicators* (as posted on the World Bank website; downloaded on June 7, 2011).

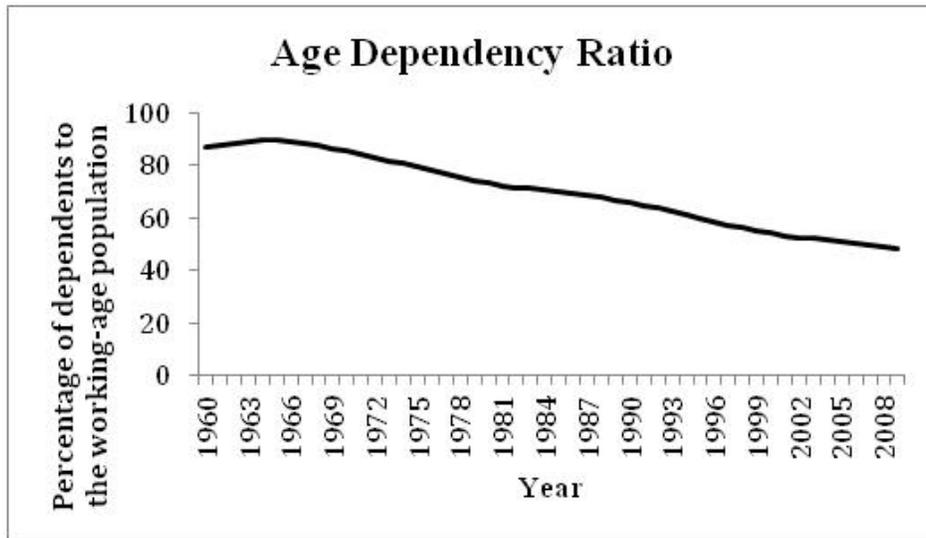
Brazil has also experienced demographic changes that present economic challenges as well as opportunities. As shown in Figure 4, life expectancy has increased steadily since 1960, which implies that more stress is placed on some public programs, especially the pension system. Despite increasing life expectancies, the age dependency ratio, defined as the ratio of dependents (people younger than 15 years or older than 64 years) to the working-age population (those ages 15-64) has fallen in Brazil (Figure 5).

**Figure 4: Life Expectancy at Birth (years), 1960-2009**



Source: Created by author based on World Bank (2011) *World Development Indicators* (as posted on the World Bank website; downloaded on June 7, 2011).

**Figure 5: Age Dependency Ratio, 1960-2009**



Source: Created by author based on World Bank (2011) *World Development Indicators* (as posted on the World Bank website; downloaded on June 7, 2011).

Like in most developing countries, declining fertility rates result in a growing working-age population, and constitute a demographic window of opportunity, which will however close soon. As pointed out by Jaeger (2010, p. 1), while Brazil will gain approximately 2 million new workers in the next two decades, the population will become “a net negative in terms of per-capita growth.” This suggests there is a demographic imperative to allocate investments to this burgeoning young population to minimize the negative effects of forthcoming demographic changes. Brazil’s recent economic growth has aided its modernization efforts and has even lifted many out of poverty. However, the forthcoming closing of the demographic window suggests that Brazilian policymakers need to make more pragmatic investments, especially in the education sector.

## **IV. Discussion**

The subsequent discussion shows that education is perhaps the most effective way to bolster future growth in Brazil. We first examine the impact of education on economic growth, review then Brazil’s demographic window of opportunity, summarize systemic failures in Brazil’s education system, examine the relationship between education and poverty, and close with some policy implications.

### **IV.1. The Case for Education**

Studies undertaken in the last decade suggest that there is an increasing importance for countries to foster strong educational policies in order to spur development. According to Hanushek and Wößmann (2007, p. 1), “educational quality – particularly related to developing countries – is THE key issue” for development. Cognitive skills gained in primary and secondary education historically bring about more economic returns. Hence, there are two chief ways in which education can be enhanced: through increasing quantity and quality.

By increasing the amount of schooling, students have more time to develop basic skills in disciplines such as reading, mathematics, and science. Hence, bolstering the quantity of education should foster human capital, hopefully bolstering productivity in the long-term. Additionally, a more educated workforce has a higher capacity for innovation, helping bring about structural changes to the economy. According to Hanushek and Wößmann (2007, p. 24), “several recent studies suggest that education is an important both as an investment in human capital and in facilitating research and development and the diffusion of technologies.” Hence, increasing the quantity of education helps students gain more familiarity with technology, which encourages future innovation and productivity. However, due to limited research on the subject, Hanushek and Wößmann (2007) are skeptical to make any definitive links between development and the quantity of schooling.

Interestingly, Hanushek and Wößmann (2007) articulate a clearer relationship between the quality of education and economic growth. After reviewing the International Adult Literacy Survey, they conclude that people who had a more quality education earned better scores than those who had more schooling. By focusing on developing cognitive skills with better methods, “income levels improve mainly through speeding up technological process rather than shifting the level of production function or increasing the impact of an additional year of schooling.”<sup>11</sup> Further analysis suggests that enhancing the quality of education has large benefits for economic growth.

Hanushek and Wößmann also studied the test scores from countries that voluntarily participate in the International Association for Educational Achievement (IAEA). While plotting test scores against initial levels of GDP per capita, Hanushek and Wößmann (2007, p. 26) found that “higher tests performance would yield around one-percentage point higher annual growth rates.” Moreover, these investments have better returns in developing countries. After comparing test scores from developing and developed countries, the results were similar when educational quality was emphasized. Developing quality education for all students constitutes an effective way to generate economic growth and a powerful tool for developing nations. However, challenges still remain. Without sound education systems, students languish in poor schools and do not acquire skills that benefit the economy.

## **IV.2. Demographic Window of Opportunity**

Like most developing nations, Brazil is currently experiencing a demographic transition. Due to a dramatic decline in birth rates (see Figure 6) and a limited increase in life expectancy (Figure 4 above), the working age population will continue to grow until about 2025.<sup>12</sup> This period is often referred to as a “demographic window of opportunity” because changes in age structure can have significant economic benefits if necessary investments are made before dependency ratios increase. Principally, the growth of the working population creates increases in income, and this population continues to accumulate wealth as it ages.<sup>13</sup> This process boosts GDP over time. Additionally, low dependency ratios also allow for more public investment since fewer resources are directed to pension programs.<sup>14</sup> According to calculations undertaken by Queiroz and Turra (2010, p. 20), if Brazilian policy focuses on this generation of workers “demographic dividends could raise GDP growth per effective consumer by 2.48% per year on average.”

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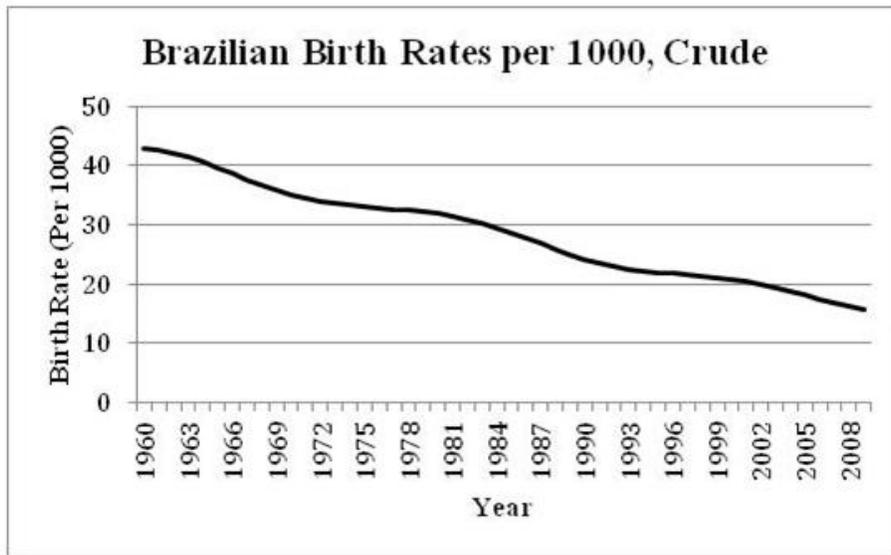
<sup>11</sup> Hanushek and Wößmann (2007), p. 29.

<sup>12</sup> Queiroz and Turra (2010), p. 9.

<sup>13</sup> Queiroz and Turra (2010), p. 6.

<sup>14</sup> Queiroz and Turra (2010), p. 5.

**Figure 6: Crude Birth Rates (per 1000), 1960-2009**



Source: Created by author based on World Bank (2011) *World Development Indicators* (as posted on the World Bank website; downloaded on June 7, 2011).

However, evidence suggests that policymakers failed to take complete advantage of the demographic changes in recent years, mostly due to the generous pension system in Brazil. Not only does the program detract from further investment in public programs, but generous benefits also encourage older Brazilians to leave the workforce earlier. This increases the pension to workers ratio and becomes a burden on the economy.<sup>15</sup> Maintaining the costly pension system discourages investment in the younger generations and does not adequately convert the demographic changes into economic growth. To take advantage of falling dependency ratios, Brazilian policymakers have a narrow window to alter public programs that bolster investment in future human capital.

### **IV.3. Systemic Failures in Brazil's Education System**

In Brazil, school attendance is mandatory for eight years: four years are to be spent in primary education and another for years in secondary school.<sup>16</sup> In 1988, the Brazilian government mandated that 18 percent of its budget should be used for education.<sup>17</sup> Indeed, as shown in Figure 7, Brazil's public spending on education as a percentage of GDP has nearly doubled since 1970 and now hovers around 5 percent. This rate is actually higher than the Latin American average, which stands at 4 percent of GDP.<sup>18</sup> Overall, Brazil ranks fifty-fifth in the world for education expenditure as a share of GDP.<sup>19</sup> Therefore, Brazil's education system does not suffer severely from a lack of funding, but more so from a mismanagement of resources.

<sup>15</sup> Queiroz and Turra (2010), p. 18.

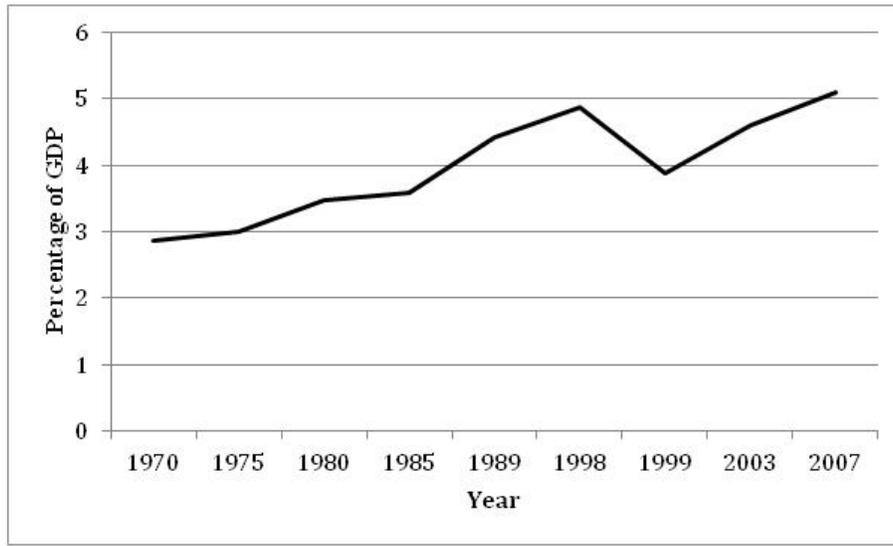
<sup>16</sup> Cardoso and Verner (2008), p. 2.

<sup>17</sup> Queiroz and Turra (2010), p. 14.

<sup>18</sup> CIA (2011) World Factbook.

<sup>19</sup> CIA (2011) World Factbook.

**Figure 7: Education Spending (as percent of GDP), 1970-2007 (available years)**



Source: Created by author based on World Bank (2011) *World Development Indicators* (as posted on the World Bank website; downloaded on June 7, 2011).

Alarming statistics illustrate the severity of problems in the current Brazilian education system. Two-thirds of all students are functionally illiterate by the time they graduate and “more than 60 percent of those in school do not reach a level of basic literacy in cognitive skills.”<sup>20</sup> As described earlier, in order for education to result in substantial returns it must establish cognitive proficiencies. Even more disturbing, only 8 percent of Brazilian students reach literacy.<sup>21</sup> The literacy rate of adults over age 15 is only 88.6 percent; in contrast, the average literacy rate for Latin American countries is 97.3 percent.<sup>22</sup> Years of failing policy have created a generation of workers who are uneducated, which will hurt development in the long term.

Similar to the rest of Latin America, Brazil suffers from high dropout rates and high repetition rates. The average dropout rate in Latin America is around 33 percent, and the average grade repetition rate is 12.4 percent. Although Brazil has a relatively low dropout rate between 20 and 25 percent, grade repetition is more severe in Brazil than in Latin America. In Brazil, 21.9 percent of Brazilian secondary students have to repeat grades.<sup>23</sup> Based on the latest data available in World Bank (2011), grade repetition rates are now more common among children in secondary school (Figure 8) than among children in primary school. Evidently, these students cannot command material presented to them, which constitutes a significant systemic failure. As Cardoso and Verner (2008, p. 2) suggest, “high enrollment rates do not translate into high completion rates or into a high level of schooling by school leavers.”

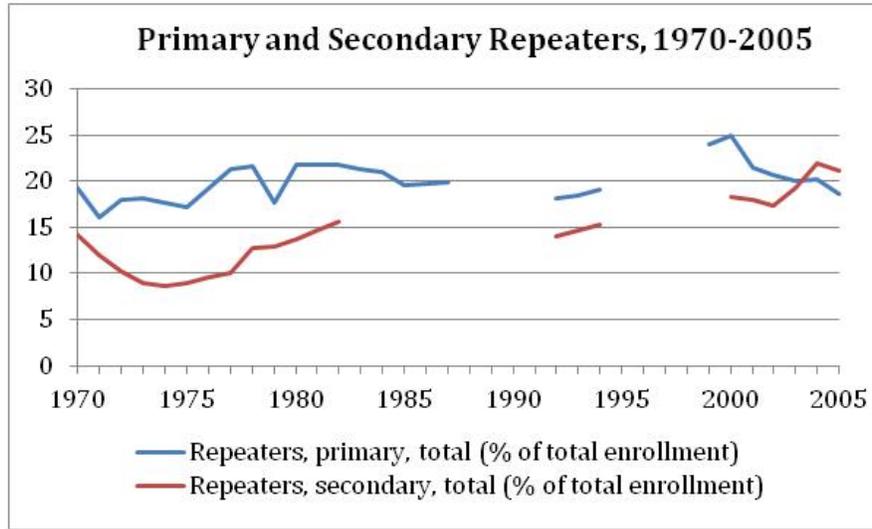
<sup>20</sup> Hanushek and Wößmann (2007), p. 53.

<sup>21</sup> Hanushek and Wößmann (2007), p. 53.

<sup>22</sup> World Bank (2011).

<sup>23</sup> United Nations (UN) Economic Commission for Latin America and the Caribbean (ECLAC) (2002).

**Figure 8: Primary and Secondary Repeaters (percent of total enrollment), 1970-2005 (available years)**



Source: Created by author based on World Bank (2011) *World Development Indicators* (as posted on the World Bank website; downloaded on June 7, 2011).

Cardoso and Verner (2008) hypothesize that a rise in teen pregnancy contributes to these discouraging statistics. They point out (p. 1) that in 2000, teenage births accounted for 20 percent of all births, a dramatic shift from the 9 percent in 1980. As Cunningham and Jacobsen (2008, p. 6) point out, “family background has an impact on education attainment and grade repetition.” For many girls, families hardly discourage the decision to leave school. To achieve quality education, policies must attack the high dropout and grade repetition rates.

Additionally, studies suggest that an inadequate use of classroom time is one reason why funding does not correlate with higher quality. High rates of teacher absenteeism have devastating effects, such as decline in reading fluency, high dropout rates, and high grade-repetition rates. Studies conducted in the Brazilian state of Pernambuco (which suffers from significant poverty) illustrate these issues. After conducting unannounced visits to classrooms, researchers found that 40 percent of teachers had been reported missing in the town of Sertão de San Francisco. Moreover, even when teachers are in the classroom, they often talk among themselves and waste teaching time, or simply leave their posts and teach elsewhere. Compounding absenteeism is a lack of oversight. Seventy-four percent of log books, which track teacher attendance, were not filled out in Pernambuco schools. Teacher absenteeism remains a challenge for reform.<sup>24</sup>

Evidence also suggests that pedagogies used in Brazilian schools detract from retention and often do not bolster cognitive skills. Students need both individual support and hands-on activities to maximize growth in cognitive skills, but inefficient methods undercut the quality of education.<sup>25</sup> Although schools in Pernambuco were relatively small (only containing 25 students on average), students did not receive individualized attention; in fact, teachers addressed the entire class 70 to 90 percent of the time. Moreover, hands-on activities and discussion with other students, which

<sup>24</sup> This paragraph is based on Abadzi (2007), pp. 21-24.

<sup>25</sup> Abadzi (2007), p. vi.

promotes better absorption of the material, were only used in 5 percent of class time. Teachers also spend too much time on organizing class, according to conventional U.S. standards. Whereas teachers should spend less than 15 percent of the school day for planning, teachers in Pernambuco used 27.9 percent of classroom time to organize. Students take advantage of the unstructured time and often become distracted. During class visits, researchers found that students were off task 21 percent of class time. In an attempt to expand education, methodologies and practices have become shallow, and the resulting inefficiencies have large implications on the quality of education.<sup>26</sup>

These problems severely undermine the positive effects of education on economic growth. Even with greater government spending on education, inefficient use of funds and time in the classroom will not result in achievement gains. Unfortunately, impoverished schools often concentrate such systemic issues.

#### **IV.4. Relationship between Education and Poverty**

High dropout rates appear to stem from extreme poverty. Based on a survey by Cardoso and Verner (2006), conducted in Fortaleza (a region in northeastern Brazil with 402 favelas/slums and some of the highest rates of poverty in the country), 33 percent of students who did not complete schooling had experienced hunger in their lives.

Education remains a viable tool for poverty reduction. Based on a study examining the dynamics of earnings inequity, Cunningham and Jacobsen (2008, p. 15) concluded that “policies that attempt to equalize earnings-related characteristics across the whole population, say guaranteeing universal primary education and hopefully also secondary education, may do more to equalize earnings.” Additionally, better education attainment for women often results in higher returns.<sup>27</sup> Fortunately, more and more women are attending college in Brazil (see Figure 9).

Quality education can diminish gender inequalities as well as break the cycle of poverty in poorer regions of Brazil, but as detailed in Abadzi (2007), these regions also suffer from a variety of inadequacies:

- Lower income regions, such as Ceará in Pernambuco, participate in fewer instructional activities that reinforce cognitive skills.<sup>28</sup> In fact, teachers usually emphasize copying because it provides an easy way to command a classroom; unfortunately, these passive methods fail to engage students and encourage retention of the material.<sup>29</sup>
- Teachers in impoverished regions are often undereducated themselves, and even avoid teaching material they have less command with. As Abadzi (p. 36) states, “the stresses of large classes, unresponsive students, and insufficient knowledge to deliver demanding curricula may make teachers avoid the tasks that they consider tedious.”
- Furthermore, poorer students, who already experience little instructional direction, are predisposed to a worse education that does not foster cognitive skills, and also leads to higher dropout rates.

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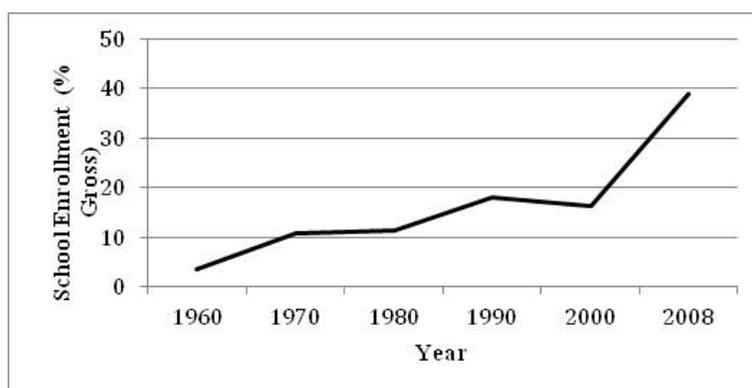
<sup>26</sup> This paragraph is based on Abadzi (2007), p. vi and p. 27.

<sup>27</sup> Cunningham and Jacobsen (2008), p. 5.

<sup>28</sup> Abadzi (2007), p. 14.

<sup>29</sup> Abadzi (2007), p. 15.

**Figure 9: Female Tertiary School Enrollment (percent), 1960-2008 (available years)**



Source: Created by author based on World Bank (2011) *World Development Indicators* (as posted on the World Bank website; downloaded on June 7, 2011).

Quality education has the potential to bring about significant growth and poverty reduction; however, more initiatives are needed to overcome the inequity in the education system. One of such initiatives is the so called Bolsa Escola Familia program, which was launched in 1995 in Brasilia by then-governor Cristovam Buarque to provide education stipends for poor families. The program intends to achieve parity by attacking multidimensional effects of poverty in addition to providing better access to education. Applicants have a monthly income per capita of less than R\$50 (extremely poor) or between R\$50-R\$100 (moderately poor), and usually receive between R\$15 and R\$95 per month. Families in the program agree to requirements that advance a human development agenda; for instance, children between the ages of 8 and 15 must attend 85 percent of classes and visit health clinics regularly.<sup>30</sup> These not only increase access to education, but also attempt to alleviate other compounding factors of poverty, such as health and sanitation.

By 2003, Bolsa Escola expanded to nearly every Brazilian municipality and doled out more than \$500 million to 11.2 million families.<sup>31</sup> These programs “had a strong impact in reducing child dropout during the school year” and dropped grade retention rates from 26.4 percent to 22.4 percent.<sup>32</sup> Clearly, these stipends are effective in increasing access to education for poor families. However, evidence suggests that these programs were targeted to children who were less likely to drop out due to prior history, which questions if funds are truly reaching the poorest families.<sup>33</sup> In any case, Bolsa Escola represents an innovative approach to expand education across the country.

#### **IV.5. Policy Implications**

Education presents one of the most efficient ways to achieve economic growth and sustain development for Brazil. Especially in a period of demographic transition, Brazilian policymakers are in a unique position to make investments that will significantly increase GDP over the next decades. However, as discussed earlier, several systemic problems complicate this growth. Changes in current policy can restructure education and correct some of the inefficiencies. To

<sup>30</sup> de Janvry et al, (2005), p. 1.

<sup>31</sup> de Janvry et al, (2005), p. 1.

<sup>32</sup> de Janvry, Finan and Sadoulet (2006), p. 4.

<sup>33</sup> de Janvry, Finan and Sadoulet (2006), p. 4.

reduce rates of poverty, policies should focus on improving conditions within the classroom. Thorough education that bolsters cognitive function will foster a generation of contributing workers. These efforts must be concentrated to the poorest regions, which generally receive the least quality education in the country.

As discussed earlier, a major problem in education for developing countries is teacher absenteeism, and several policy tools can mitigate this problem. Schools that update buildings and improve functionality may attract more teachers and encourage them to remain at their posts.<sup>34</sup> Additionally, principals must enforce stricter penalties and oversight with absenteeism. For instance, clearer guidelines and positive reinforcement for punctuality would encourage teachers to make more efficient use of time.<sup>35</sup> Moreover, salary increases may incentivize teachers to act more responsibly.<sup>36</sup> Abadzi (2007, p. 42) suggests that schools in developing countries, such as Brazil, should attempt to curb absenteeism to 10 percent. If teachers arrive to class prepared, students will benefit from cohesive lessons that support cognitive development. Teacher absenteeism currently detracts from quality education.

However, reducing absenteeism tackles only part of the problem. Even if teachers show up to class, they often waste valuable time and engage in inefficient pedagogies. As Abadzi (2007, p. 35) notes, “assumptions about the pro-poverty alleviation effect of education may be unrealistic, given that the schools of the poor make less effective use of instructional time.” Before Brazilian governments commit to increasing education funding, structures must be put in place to ensure that quality will be enhanced. Indeed, “the time devoted to learning the material prescribed by the curriculum may be the crux of education ‘quality.’”<sup>37</sup> Providing more aid to teachers may be an effective tool for organization and lesson-planning.<sup>38</sup> Again, incentives like salary increases for teachers who demonstrate dedication towards good time management will help students focus on material and bolster absorption of the material.<sup>39</sup>

Additionally, more efficient teaching models, such as phonics for reading, are more expedient for learning. With these methods, policymakers should aim to use 80 percent of time as a benchmark for developing countries. Since research suggests that adequate time is essential for quality education, increased oversight and supervision of teachers are paramount for reform. With better time management and teaching, students should be able to achieve at higher rates. To increase student achievement, teachers must emphasize basic skills, such as reading, language, and math.<sup>40</sup> However, enhancing accountability systems may provide a more accurate measure for educational quality and encourage teachers to improve teaching methods. Programs should incentivize teachers with salary increases if their students improve on standardized tests.<sup>41</sup> This means that schools may eliminate traditional tenure programs to shift accountability to teachers.

Programs that address other aspects of poverty will also encourage higher attendance, which is essential for quality education. Voucher programs, as previously discussed, significantly improve accessibility and reduce dropout rates. Other reforms, such as lowering the cost of transportation

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<sup>34</sup> Abadzi (2007), p. 36.

<sup>35</sup> Abadzi (2007), p. 40.

<sup>36</sup> Abadzi (2007), p. 26.

<sup>37</sup> Abadzi (2007), p. 34.

<sup>38</sup> Abadzi (2007), p. 26.

<sup>39</sup> Abadzi (2007), p. 35.

<sup>40</sup> Abadzi (2007), p. 42.

<sup>41</sup> Cardoso and Verner (2006), p. 16.

and bolstering public health programs, would help increase attendance and boost cognitive development in the long term.<sup>42</sup> Policymakers, therefore, should concentrate on reforms that encourage attendance and accessibility, especially in poorer regions. More importantly, efficient use of time should maximize the absorption of material in order to improve cognitive function. Once schools provide quality education, Brazil can fully take advantage of demographic changes and foster the next generation of workers.

Finally, some social programs in Brazil – primarily the pension system – may undermine the benefits of demographic changes unless changes are made. The public transfer system siphons too many funds from education and development in human capital. As Queiroz and Turra (2010, p. 21) suggest, “giving the current structure of public transfer system in Brazil, the government will observe a faster growth in the number of beneficiaries than contributors, and it will enjoy for a very short period the benefits brought by the demographic transition.” To fully take advantage of demographic changes, policymakers must ensure that funding the hefty pension program does not take away from further education spending.

## **V. Conclusion**

Brazil is the preeminent economy of Latin America and has reaped some benefits of economic growth especially during the last decade. However, it is increasingly apparent that the growth will perhaps not be as robust in the future. Thus, it is important to direct investment behavior to programs that take advantage of current demographic changes. Falling dependency ratios translate into a growing working population, which will sustain economic growth. However, as this window of opportunity is projected to close in 2025, policy changes must be rapid and effective.

Moreover, education can generate growth over the long term. These benefits are dependent on quality education, which is evidently not accessed equally by all Brazilian students. Across the country, there are several failures within the education system. According to studies conducted by the World Bank, many schools waste too many valuable resources and time in the classroom. Additionally, teachers often use ineffective pedagogies that do not emphasize hands-on activities or offer enough personal time with students. Often, these schools do not adequately develop cognitive skills that are important for child development. Given these challenges, raising education expenditures does not guarantee better student achievement unless specific reforms are implemented. These changes are perhaps more necessary for impoverished regions, which concentrate systemic issues.

Clearly, the need for reform is urgent. The success of cash transfer models like the Bolsa Escola Familia program offers some optimism. This program not only reduces dropout rates but also advances a social agenda that aims to alleviate the multidimensional causes of poverty. Additionally, scrapping traditional tenure systems may encourage teachers to improve their teaching techniques. Principals and administrators, on the other hand, need to take more responsibility by providing staff with stricter guidelines regarding absenteeism.

In conclusion, if Brazil is to achieve its projected success, policymakers must seriously tackle the inadequate education system. Not only does quality education provide an engine for future economic growth but it also bolsters Brazil’s human development.

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<sup>42</sup> Cardoso and Verner (2006), p. 16.

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