EDUCATION DECENTRALIZATION AND GENDER DISPARITIES IN SCHOOL PARTICIPATION IN SUBSAHARAN AFRICA

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ABSTRACT

This paper was completed as an undergraduate research project as part of the Summer Policy Internship at the Andrew Young School of Policy studies during the summer of 2009. Since the internship, a few modifications have been made in order to improve the paper. It overviews the popular policy of education decentralization in five selected countries of Sub Saharan Africa: Ethiopia, Nigeria, South Africa, Senegal, and Uganda. It also looks at the persisting gender disparities in education outcomes in the region and tries to determine whether education decentralization is a determinant. This paper tests the hypothesis that education decentralization and economic growth improve gender parity through the improved provision of education. Finally, we address the policy ramifications of our results.

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INTRODUCTION

Generally speaking, decentralization is the transfer of administrative, implementation or budgeting responsibilities from the central government to the local government. Among popular policy decentralization topics is that of education. It has been widely discussed by policymakers around the world for years. Also, various forms of decentralization of the education sector have been implemented. Decentralization has the potential to ameliorate education systems. While this paper does not provide conclusive evidence that education has been improved by decentralization, the results do support future research in this area.

Even though some significant efforts have been observed in a couple of countries in Sub Saharan Africa (SSA), the region has been rather slow to adopt these policies. While these efforts are widely seen as a step in the right direction, these changes present an opportunity to address the troubled area of female educational participation and outcomes. For the most part, the African continent has very low female participation in schools across the board and gender disparities are thus very obvious. This may explain why two of the Millennium Development Goals[i] (MDGs) specifically focus on universal education and empowering women.

A recent international conference held in Mexico City (2008)[ii] brought together five hundred policymakers, researchers, national and local government officials, civil society and grassroots activists to discuss their research in the specific field of decentralization. This conference resulted in policy recommendations toward "a global agenda on gender and decentralization". One of goals of the agenda was to promote gender equality and equity through the decentralization process.

This paper presents an overview of the existing gender inequalities in educational outcomes in Sub Saharan Africa and explores the possibility of reducing them through education decentralization in the region. Toward this end we investigate whether past decentralization has had any effect on persisting gender gaps in education.

I/ BACKGROUND ON EDUCATION DECENTRALIZATION AND GENDER DISPARITIES

A. Education Decentralization: definition, measures and purpose

Literature on decentralization generally agrees on the fact that education decentralization is a difficult concept to define. However three major degrees of decentralization are discussed in the literature: deconcentration, delegation and devolution. Deconcentration refers to the transfer of management responsibilities –but not authority – from the central government to local institutions so that the central government is still in control (Fiske, 1995); in other words, it is a shift of authority for implementation of rules, not for making them (McGinn and Welsh, 1999). Delegation is best described as the transfer of decision-making from higher branches of government to lower hierarchies; in this type however, the higher hierarchical unit has the ultimate power because it can withdraw the authority from the lower one (Hanson, 1997). Devolution allows the lower levels of government to act and make decisions independently from the national power. This type or decentralization is generally considered to be the most effective at creating local government autonomy (Hanson, 1997 and Fiske, 1995). Privatization is often

considered to be devolution of power to private organizations. Devolution is the type of transfer of responsibilities that we consider "decentralization" in this paper.

Briefly speaking, the rationale behind an education decentralization policy is mainly the improvement of the education system, the quality of education per se (McGinn and Welsh, 1999), and the promotion of democracy and accountability through distribution of powers (Hanson, 1997). It is also meant to increase the efficiency in the delivery of education because it implies less bureaucracy, thus faster decision making (Hanson, 1997).

Education decentralization is as complex to measure as it is to define. A common measure, generally used in literature, represents the share of sub-national governments' expenditure in education (Heredia-Ortiz, 2006). Because sub-national data for education expenditure is often scarcely available, one may use the share of sub national government's expenditure relative to the government's total expenditure. Fiscal decentralization is a good proxy for education decentralization given the fact that these two are highly correlated (Heredia-Ortiz, 2006).

$$\text{Education Decentralization} = \frac{\text{Sub national Government Expenditures on Education}}{\text{Total Government Expenditures on Education}}$$

$$\text{Fiscal Decentralization} = \frac{\text{Sub national Government Expenditures}}{\text{Total Government Expenditures}}$$

While informative, these measures were not used in the regression model as such data were only available for 14 SSA countries. A dummy variable was used instead (see data section for details).

B. Gender Disparities: definition(s), measures and purpose

Equality of opportunities for men and women has been a major aspect of policymaking for many years now. As cited by Nelly Stromquist, "education is the most important productive asset that most people will ever own" (Perry et al., 2003, p. 26 in Stromquist 2006); giving a chance to acquire basic knowledge and skills to both boys and girls can be seen as the first step towards achieving overall gender parity. One way to think about the difference in educational outcomes of boys and girls is the gender gap, also referred to in the literature as "gender disparities"; a gender disparity is a discrepancy observed in various outcomes between males and females. These disparities are very useful for informing gender-related issues in a wide range of sectors such as labor, health, education and so on. The education literature examines gender disparities in a number of educational outcomes.

In a 2003 PowerPoint presentation from the UNESCO website[iii], two very straight forward indicators are mentioned: the *absolute gender gap* and the *gender parity index (GPI)*. The *absolute gender gap* is the difference between male and females rates in percentage points whereas the *gender parity index* is the ratio of female to male rates; a GPI below 1 indicates disparity in favor of boys and a GPI above 1 indicates a disparity in favor of girls. For this paper we use the absolute gender gap to generate a chart comparing literacy rates and the gross enrollment ratio's GPI for the regression model.

These indicators matter because equality and equity between males and females is a favorable factor for development; it has even been observed that "countries with the smallest educational gaps between men and women have higher GNPs […]" (Stromquist, 1997).

Therefore, it is important for policy makers to incorporate provisions for such concerns when implementing these education decentralization policies.

II/ SELECTED CASES IN SUB SAHARAN AFRICA

Africa has seen the slowest progress towards both decentralization reforms and the achievement of equality in access to education for males and females; however, some countries are making noticeable efforts to implement policies that seem to be on the right track. In this section of the paper, we briefly present five cases of education decentralization in SSA: Ethiopia, Nigeria, South Africa, Senegal and Uganda. Here we look at the type of decentralization and the status of girls' participation.

A. Ethiopia

Education became a priority public spending activity only recently (2000) in Ethiopia and the country has undergone a far reaching decentralization of government (Hinchliffe and Tan, 2005). The devolution process typically enables the branches of sub-national governments called "woredas" to be directly responsible for the delivery of primary and secondary education. Some dramatic improvement has been experienced following the implementation of these policies. In a table included in the "Prospects, Challenges and policy options of Ethiopian Educational System towards the Achievement of Education for all (EFA) Goals", by the Hiroshima University, it is reported that net enrollment rates for males went from 51.2 % in 1999/2000 to 62.9% in 2003/04, while female rates went from 36.6% to 51.8%. The *absolute gender gap* was reduced from 14.3% to 11.1%, a rather minor gender equality improvement, but we can see that overall participation rate increased.

B. Nigeria

According to (Uwakwe et al., 2008), the Federal Ministry of Education of Nigeria, in collaboration with the states, launched a National Action Plan for Education for All. The stated objectives of this initiative included the reduction of gender disparities at all levels of education (including higher education) and the achievement of gender equality for primary and junior and secondary education by 2015 (Uwakwe et al., 2008). They also mention that the most common form of decentralization used in Nigeria is privatization.

It has been noted that there is a "national gender disparity in basic education enrollment, retention and completion, which is not in favor of girls" (Uwakwe et al., 2008). Northern Nigeria and rural communities are generally hardest hit by these discrepancies. Suspected reasons include: the prominence of early marriages (mostly arranged), the local belief that only men carry on the family's name and common place labor market participation by young girls. A subsequent program, the Strategy for Acceleration of Girls' Education in Nigeria, which is supported by the United Nations' Children Fund (UNICEF), was launched to address these issues (Obuchi, 2005 in Uwakwe et al. 2008). Although no evidence is available at the moment, it is fair to suspect that such programs are better implemented locally and can potentially address equality in the classroom properly.

C. South Africa

In South Africa, policy changes made in 1994 (post apartheid reforms) focused on governance, finance and devolution to provincial governments. These efforts offered a reasonably high degree of school level autonomy (Crouch and Winkler, 2008). Unfortunately, in the education sector, the emphasis was put on the devolution of education management with less regard to democratic participation. According to some recent figures on South Africa's profile on the World Bank's website, the primary GPI (for the GER ratio) is 0.96; this may be due to the fact that South Africa historically placed value on equal access to education (Crouch and Winkler, 2008).

D. Senegal

Senegal's reform policies were mainly influenced by the World EFA meeting in Jomtien, Thailand (1990). There is a public-private partnership for community-based non-formal education, in an attempt to promote the sharing of power between the central government and the local one (Jacobsen et al., 2007); this is more of the delegation case. Besides government-implemented policies, Senegal also receives assistance from the international community. Starting in 2004, USAID initiated the Children Learning Access Sustained in Senegal (CLASS), a five-year program which had as its main goal the improvement of decentralization and community management (EQ Review, 2005). In a recently updated country profile (November, 2008) by the World Bank, the country shows a primary GPI of 0.98 for GERs, which indicates that some of these measures are effective. Again, although this high level of parity seems to be correlated to the advancement of gender equality, no study has introduced such a claim yet.

E. Uganda

Uganda has one of the most praised and publicized success stories of education decentralization in the continent. The Local Government Act of 1997 devolves a bulk of the decision making and administrative functions to sub-national levels (DPU, 2007). These sub-national governments are organized in a local council system; each school has a School Management Committee (SMC) whose members include the Parent Teacher Association's (PTA) representatives. The PTA and board of governors have the power to raise revenue and assign spending plans. They possess a sophisticated communication system called Education Management Information System (EMIS) that is current and reliable. This system is readily available to all stakeholders of the decentralization process i.e. local officials, parents, and teachers etcetera. It is reported that 94% of educational resources reach the classroom (DPU, 2007). Among several gender oriented programs initiated to promote parity are the National Strategy for Girl's Education (NSGE), the Promotion of Girls' Education (PGE) and Equity in the Classroom (EIC); these all aim to "foster gender parity […] and facilitate girl child retention in the classroom" (Muhwezi,2003). Uganda seems to have realized the importance of improving girls' participation in basic education and this may explain the achieved GPI of 1.01 (World Bank, country profile, Uganda, updated November 2008)[iv].

A quick overview of these education decentralization examples in SSA appears to suggest that devolution has had some impact on advancement towards gender equality, especially when the policies are simultaneously implemented with a focus on the EFA goals. Graphs on public expenditures on education (2007) on the UNESCO website [v]show that all five countries have a 17-26% (of total government expenditures) spending range for all levels of education, which is commendable for African countries. According to earlier data (2006), the average sub Saharan African country only spent about 4% of national income on education[vi]. Nevertheless, a consensus has not yet been reached on whether education spending or decentralization actually contributes to gender equality.

III/ DATA ANALYSIS

A. Data description and sources

This paper attempts to analyze the discrepancies within girls and boys participation in basic education in Sub Saharan Africa. Therefore, I have chosen gender parity index as the dependant variable. The GPI is measured, as described earlier using the ratio of female to male enrollment rates. All the GPI data was collected from the World Bank education statistics online database[vii]. The GPI can be calculated for any education indicator; we used the GPI for gross enrollment rates at the primary level because this gives a broad idea of participation.

Among a wide variety of available variables, nine stood out as potential explanatory variables. Five of them were collected for both males and females: net enrollment rates, repetition rates, dropout rates, completion rates, and youth literacy rates. All of these measures, apart from the youth literacy rate, are classic measures of education outcomes according to various literatures in the field. The youth literacy rate is an indicator of the quality of the education; it was not used in the model but to generate a chart which compares female and male outcomes (see appendix).

Five other independent variables were considered. The first, youth dependency ratio, is the number of dependants per working age adult. Secondly, the fertility rate of adolescent females is given by number of births per 1000 female adolescents aged 15 through 19. The pupil-to-teacher ratio is another classic measure that is used in education research dealing with quality or efficiency. GDP per capita in current US dollars is used as a general indicator of the level of development of the country. Finally, the decentralization measure, which is the main independent variable of interest, was calculated as described in the section one of this paper.

All independent variables except for the decentralization were collected from the World Bank's education statistics online (Edstats) and World Development Indicators (WDI) databases. The decentralization measures were provided by the Andrew Young School of policy studies' research center in a Government Financial Statistics CD-ROM published by the IMF. The data were originally downloaded for all 48 countries that are part of SSA. Though we had variables available for 40 countries, the decentralization measures (both fiscal and education) were only available for 14 SSA countries.

B/Potential Model

Ideally, we would use a simple linear regression model with GPI as the independent variable (Y) and the nine following independent variables: X_1(fiscal or education decentralization measure), X_2(dropout rates), X_3(dependency ratio), X_4(adolescent fertility rates), X_5(pupil per teacher ratio), and X_6(GDP per capita in current US dollars).

$$Y = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \beta_5 X_{i5} + \beta_6 X_{i6} + \varepsilon_i$$

Potential explanatory variable	Expected sign
Gender parity	n/a
Education decentralization	+
Dropout rates	-
Repetition rates	-
Adolescent fertility	-
Pupil per teacher ratio	-
GDP per capita	+

Table 1.

A summary of the potential explanatory variables and expected signs are found in Table 1. Summary statistics for some of the variables mentioned in the data description section (net enrollment, dropout, repetition and completion rates for both males and females) are found in table 2. We particularly pay attention to the means, maximums and minimums. It is interesting to see that, based on those three parameters the gender disparity is in favor of girls when it comes to NERs and completion rates but in favor of boys when it comes to other education output variables such as dropout, repetition rates. This indicates that there may be underlying factors driving the disparity to the disadvantage of girls when they are actually in the process of getting an education. For example the prominence of early marriages and other factors mentioned above.

FEMALES	NERs	DROPOUT	REPETITION	COMPLETION
Mean	61.83855	38.26906445	17.21631309	49.01574735
Minimum	25.62667	1.871808055	2.960559716	12.83448656
Maximum	95.03591	68.85931081	35.06274477	98.94045045
Count	39	39	39	39
MALES	**NERs**	**DROPOUT**	**REPETITION**	**COMPLETION**
Mean	68.22783	37.60580777	17.66396456	55.50593052
Minimum	37.53084	2.728687449	2.890300829	24.1255295
Maximum	96.63	69.54620455	36.77468968	97.52435087
Count	39	39	39	39

Table 2

C. Model description, regression results and summary statistics

1) Model description

In an attempt to obtain reliable results, we utilize variables for which the available data allow for a large sample. Data for several SSA nations were gathered from the year 2000. A dummy variable for decentralization with 1 indicating the presence some decentralization measure (Between the years 1999 and 2006) along with GDP per capita and fertility as explanatory variables; so, the model now looks as follows:

$$Y = \beta_0 + \beta_1 X_{i1} + \beta_7 X_{i7} + \beta_9 X_{i9} + \varepsilon_i$$

2) Summary statistics and regression results

The summary statistics for the data used to estimate the above model are reported in Table 4.b. This data reveals a GPI range of 0.45. This gap indicates that there are considerable disparities in the region. Nevertheless, the region has a mean GPI of 0.86 gross enrollment in primary school. This is a sign that we can optimistically set goals towards achievement of equal participation and while some countries may be lagging behind, others are improving.

Summary Statistics for Sub Saharan African Nations

Variable	Mean	Std. Dev.	Min	Max
Gender Parity Index	0.86	0.123	0.61	1.04
Decentralization Data Reported (1999-2006)	0.35	0.483	0.00	1.00
Fertility Rate (1000)	121.60	49.305	38.54	226.71
GDP Per Capita	795.49	1,075.661	109.32	3876.90
		40 Observations		

Table 4.a

The results of ordinary least squares estimation of the above model are reported in table 4.b. All three independent variables are significant and have the expected signs. Our estimates suggest that fertility does have a negative impact on gender parity as measured by GPI. On average and all else equal, a 1‰ increase in female fertility will lower the gender parity index by 0.0098%. Also, GDP per capita, as expected, is positively correlated to gender parity in school participation; a 1% increase in GDP per capita will raise the GPI by 0.003% on average, ceteris paribus. The adjusted R square is about 0.426 suggesting that 43% of the variation in gender parity is being captured by the model. However, the nature of the set up for the decentralization variable leads to an unclear interpretation of relationship between decentralization and gender parity. According to the coefficient, countries that report decentralization have higher GPI, on average and holding everything else constant. Because the decentralization variable is a dummy, the model does not predict how the magnitude of decentralization will affect the GPI. It would be interesting, if more data on fiscal or education decentralization were available for these African countries, to figure out the real impact of decentralization on the gender equality of participation.

OLS Regression Coefficients on Gender Parity Index

Variable	Coefficient
Decentralization Data Reported (1999-2006)	0.06309 * (.03317)
GDP Per Capita	0.00003 * (.00002)
Fertility Rate (1000)	-0.00098 *** (.00035)
Adjusted R Square	0.4264
Observations	40

Standard errors reported in parentheses, Statistical significance indicated at the ten*, five** and one*** percent levels.

Table 4.b

The considerable lack of relevant data for Sub Saharan Africa is unfortunate. The region is one of the less technologically advanced and politically challenged ones of the world and this may explain the scarcity of data; other reasons may include the lack of consideration for such figures or possibly the lack of infrastructure to obtain or report the information.

Conclusion

I seek to examine the relationship between gender disparities in education outcomes and education decentralization in sub-Saharan Africa. Given the noticeable enthusiasm about what education decentralization reforms can achieve for service delivery and accountability of government officials, it is useful to know what other factors should be taken into account when implementing these reforms. If implemented in favorable conditions, education decentralization does have a good potential to better output and even reduce poverty and hence promote economic growth. Sub Saharan African governments should all at least consider the idea of applying the right decentralization type for their respective country's education system structure and local needs. Including provisions for gender gap adjustment and equality of opportunity between sexes in these policies would also contribute to the improvement of equality in participation.

I did not quite get the appropriate results to make definite conclusions about the link between education decentralization and gender disparities given limited size of the sample and lack of available raw data. However, the evidence reported here is suggestive that gender parity can be improved through responsible and persistent local governance. Also, this work suggests that as data become more widely available this area of research could prove to be very fruitful.

This paper reveals that much needs to be done to improve parity. If education policies, that encourage individuals, early on in life, to value equality across genders, then there is a chance that these gaps can be addressed. It will be rewarding to revisit this project as more data becomes available. Also, future models may be improved through the addition of the rate of female adolescents with the HIV/AIDS virus. There may be a correlation between that measure and dropout rates, for example, which is likely to favor the gender disparities. Additionally, the model may be improved through the inclusion of the workforce participation rate of young females as this could be a constraint to educational attainment for girls.

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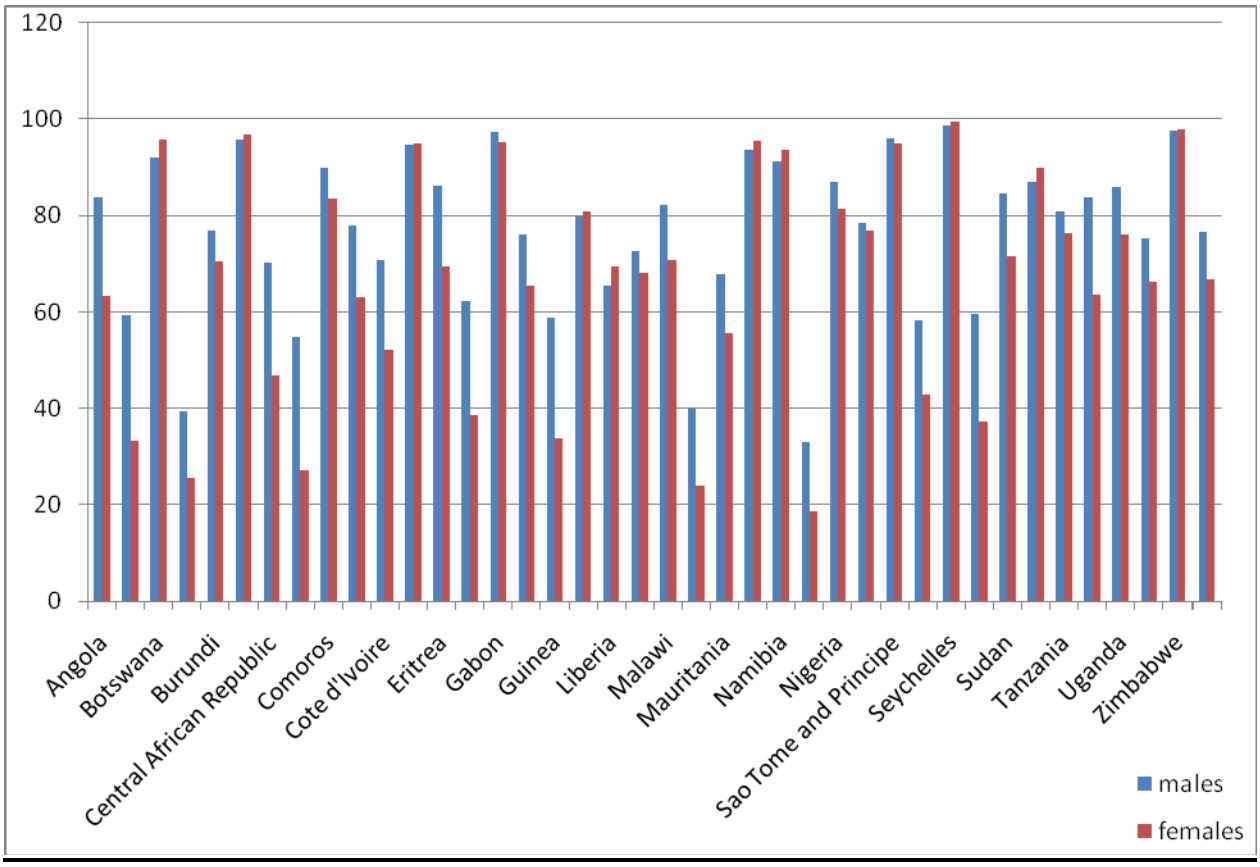
DATA SOURCES

- Edstats: www.**worldbank**.org/education/**edstats**
- WDI: http://publications.**worldbank**.org/**WDI**
- IMF Government Financial Statistics, March 2009. Andrew Young School of Policy Studies Research Support Center. Georgia State University

APPENDIX:

Absolute Gender Gap in literacy rates for 20 SSA countries



[i] http://www.un.org/millenniumgoals/
[ii] No author is specified; the article was just a report.
[iii] *portal.**unesco**.org/...**ppt**/Measuring%2Bgender%2Bparity%2Btechnical%2Bissues%2B1.**ppt** –*
[iv] http://siteresources.worldbank.org/EXTEDSTATS/Resources/3232763-1171296190619/3445877-1172014191219/UGA.pdf
[v] http://www.uis.unesco.org/ev.php?ID=2867_201&ID2=DO_TOPIC
[vi] http://www.unesco.org/education/gmr2009/press/Factsheet_SSA.pdf
[vii] *www.**worldbank**.org/education/**edstats***