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Gender Parity and the ‘Usual Suspects’ in South African Education

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COMPULSORY DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

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Abstract

Across the developing world, and in particular sub-Saharan Africa, there are vast gender disparities in educational participation and achievement. It has been shown that educating girls has powerful externalities, which, if scaled, can act as a catalyst for socioeconomic development. However, there are many gender inequality factors that prohibit girls from accessing and succeeding in educational pursuits. This report explores the South African example, looking specifically at the Cape Area Panel Study, to find whether these gender inequality factors are present and if so, what effect they are having on educational outcomes. The investigation finds that these factors are present in the sample and are more pronounced in the lives of young women. However, this report finds that while these factors introduce a disparity in educational achievement the disparity is not between, but rather within, genders. Therefore, this report finds that the presence of these gender inequality factors do not disproportionately bias against or prohibit the educational success of women.

Chapter 1: The Case for Educating Girls

Introduction

In 1992, Lawrence Summers released a report titled *Investing in All People*, which detailed the reasons why he, the chief economist of the World Bank, had come to believe that “investment in girls’ education may well be the highest return investment available in the developing world.” (Summer 1992, 1). In the report, Summers argued that the underinvestment in the education of girls results in “a vicious cycle caused by distorted incentives” and that reversing this trend not only holds the potential to change individual lives, but also carries the possibility of transforming societies (Summers 1992, 1). Investing in the education of girls carries the potential to unleash a butterfly effect by not only benefitting the individual girl but her family, community and, if scaled properly, her nation. Today, this butterfly effect, which is started when girls have equal opportunities to participate in and achieve through educational pursuits, is known as the Girl Effect and is widely heralded as a cornerstone of successful socio-economic development (Klasen and Lamanna 2009; Summers 1992; Herz and Sperling 2004; Psacharopoulos 2004; Husmann, Tyson and Zahidi 2010).

The development community has recognized the latent power of educating and empowering women but this goes beyond simply getting girls into schools. It is imperative that once girls are in school they are provided with a supportive environment to facilitates their success. Across much of the developing world, females have lower school enrolment, literacy, and school completion rates. In the majority of cases, this situation is the result of gender inequalities that prevent, hinder and discourage the educational attainment of females.

Regionally, sub-Saharan Africa has the largest educational gender disparities and, historically, has been the slowest in achieving progress (United Nations 2003/4). In fact, research

has found that “In Africa, more than half of girls – 54 percent – don’t complete even a primary education.” (Herz and Sperling 2004, 18). If they are lucky enough to complete primary school, their chances of completing the next level grow even worse as “only 17 percent of girls in Africa are enrolled in secondary school.” (Herz and Sperling 2004, 17). When confronted with such dismal statistics, it is important to remember that Sub-Saharan Africa is not homogenous. Rather it is made up of countries with their own distinct history, cultures and traditions. Additionally while the region may be failing girls, there is reason to believe that South Africa has blazed an alternate path.

In a 2008 report, the South African Department of Education stated that “The GPI¹ for total school enrolment (Grade 1 to Grade 12) indicates that gender parity has been achieved”, with an overall score of 1.006 (Department of Education 2008, 16). Furthermore, the report states, “the number of female learners passing Grade 12 is higher than their male counterparts” (Department of Education 2008, 17). In the context of sub-Saharan Africa’s enrolment and completion rates, South Africa’s achievement stands out. In fact, the level of gender parity for enrolment reported by the Department of Education’s 2008 report is comparable to the levels achieved in OECD countries, the world’s most developed countries. This suggests that South Africa’s success is not merely relative to its geographic region but rather is remarkable on an international scale.

Given the wealth of evidence and experiences from around the globe, and particularly the geographic region, South Africa’s achievement of gender parity sets an extraordinary example. As gender inequalities, both internal and external to the education system, typically prevent gender parity from being attained this naturally raises several questions. First, are South Africa’s

¹ GPI stands for Gender Parity Index, an internationally recognized statistic that provides the ratio of the “female-to-male value of a given indicator” (UNESCO 2003/4, 384)

gender rates in enrolment truly remarkable? Second, are South Africa's gender achievements contained solely within enrolment or do they exist within other measurements of educational achievement? Third, if the typical factors of gender inequality are present in South African society, what is their relationship and influence across a variety of educational outcomes? These are the main questions that this paper will explore and attempt to answer.

It should be acknowledged that the presence of and experiences from gender biases are likely not consistent across population groups. In South Africa, the legacy of apartheid frequently means that population groups have separate histories and experiences, which are visible today. While this is a valuable area of research, given the limitations of this paper, there is not sufficient time or capacity to appropriately address these issues. Therefore, while there might be differences across population groups in regard to gender disparities, this paper can only adequately address the disparities that exist across gendered lines.

1.1 What does 'gender equality' in education mean and why is it important?

Prior to addressing the above questions, it is necessary to first consider what does 'gender equality in education' really mean? The most common global statistic to assess gender equality in education is the Gender Parity Index (GPI) - the "female-to-male value of a given indicator" (UNESCO 2003/4, 384)². The GPI provides the numerical gender disparities and in education is typically applied to enrolment, survival and completion rates, failure or repeat rates, and overall attainment levels (Subrahmanian 2005, 400). In this context, parity "reflects 'formal' equality." as it provides a quantitative measure of access and participation (Subrahmanian 2005, 397). Comparatively, an exploration of gender equality focuses on both the "formal" and "informal"

² A GPI below one favors boys, while a value above one favors girl. Ratio values between .97 and 1.05 are considered to represent parity between the sexes (UNESCO 2003/4, 384).

aspects of equality – not only access and participation but also what is the experience of participation?

Solely using parity is insufficient because even when women surmount the challenges impeding participation, “gender inequalities are often institutionalised in the norms, processes and structure of interventions and institutions and present barriers to equitable outcomes.” (Subrahmanian 2005, 399). Hence, this project will look beyond parity of access and participation and will quantitatively consider indicators “related to treatment and opportunity” in an attempt to capture the multi-dimensional nature and consequences of gender inequality (Subrahmanian 2005, 402). The other indicators are performance based and will be literacy and numeracy assessments and scores on Matric exams. While these do not provide great detail on the context of the educational experience, they do provide a perspective on how the educational experience gets translated into performance.

In regard to gender equality in education there are two fundamental reasons why it is hugely important, not only at an individual level but at a larger societal level. First, gender equality is a development goal in its own right. Internationally and domestically, policies and laws call for “the promotion of gender equality and the advancement of the status of women” in and through the educational system (South African Department of Education 1996, 4). This is because gender equality is important from a human rights perspective and the role it plays socialization.

While there is debate over the specific social function of education, the line of argument underscoring this project is that “education reproduces rather than challenges inequality.” (Kane 1995, 75). The policies and regulations that structure an education system, establish the values and beliefs of the dominant group as normative. If gender inequalities are present and accepted in

the values and behavior of the dominant group, because of the “deep links between education and other social institutions and processes”, they will also be present in the educational system (Subrahmanian 2005, 405). Social attitudes and values can be cultivated in the next generation through education and it is because of this dynamic role that “educational inequality is both a cause and consequence of much wider discrimination against girls and women in society.” (Colclough 2004, 5). Thus as an education system plays a vital role in shaping and maintaining a society’s gendered identities and relations, addressing gender inequality in that environment could result in equitable gender ideologies and patterns.

The second way in which gender equality in education plays a vital social role is through the consequences of the Girl Effect. As previously mentioned, providing females with equal access to and opportunities for success through the vehicles of education and employment are the catalysts for the Girl Effect. As it causes life-changing consequences, the Girl Effect is a powerful mechanism to address other development goals.

From a macroeconomic perspective, “female education is associated with higher productivity, higher returns to investment, better agricultural yields and more favorable demographic structure.” (Lawson 2008, 2). Prohibiting girls from equal participation in and success from education artificially reduces the economy’s pool of talent, which means “the average innate ability of educated children is lower than it would be if boys and girls had equal education opportunities.” (Klasen 2002, 351). In fact, it has been argued that the economic success of the Asian Tigers³ can partly be attributed to increasing the educational attainment, and thus employability, of women (Sequino 2000a). Some economists have estimated that in the developing regions of the world, between 0.3% and 0.9% of annual growth has been forfeited because of the gender inequalities and disparities. In the African context, “this means that actual

³ Hong Kong, Singapore, Taiwan and South Korea

per capita income growth has only half its potential level” (Lawson 2008, 10). Thus, from a macroeconomic standpoint, it makes financial sense to discourage gender inequalities and disparities in education.

The second way, in which the Girl Effect addresses development goals, is through the externalities⁴ that result. With more education, women have more skills, are more employable and are able to earn formal wages for the household. Despite the commonly held belief that investing in the education of a girl is an empty investment⁵ the return on investment for a secondary level of education for women is 18% while for men it is only 14% (Psacharopoulos 2004, 113). As the resources women bring into their households increases, so does their power to determine how those resources are allocated. Across the globe, it has consistently been shown “that women allocate more resources to food and to children’s health and education than to men.” (Lawson 2008, 7). In fact, it has been shown that increasing women’s share of income and bargaining power in the household “reduces the share going to alcohol and cigarettes, controlling for income and other factors.” (Herz and Sperling 2004, 38). Thus, as more women earn and contribute to the household’s resources, more gets invested in their offspring’s human capital, which has important positive ramifications for breaking the poverty cycle and overall economic growth.

Another powerful externality is the relationship between education and fertility rates. It has been shown that “for every two to three years of education, a woman is likely to have one less child.” and that women who reach the secondary education level tend “to have more control over the spacing of children, which leads to better health for both the mother and the child.” (Lawson 2008, 7). With increased control over fertility rates, the dependency burden per worker

⁴ An excellent visual representation of these externalities and the chain reaction from Lawrence Summers seminal article *Investing in All the People* is included as Appendix A

⁵ Herz and Sperling 2004; Martineau 1997; Morrison 2008; Levine 2008

decreases, allowing for increased human capital investments in the form of education, health and nutrition – a chain of events known as a ‘demographic dividend’ (Klasen 2002, 353).

Additionally, maternal education⁶ serves as “an important predictor of children’s, especially girls, educational attainment.” meaning if the level of maternal education is high it is likely that her children will also have high levels of educational attainment and vice versa for low maternal educational attainment (Shabaya 2004, 398). This factor acts as an indicator of children’s educational attainment through the many quality of life and human capital benefits associated with higher-level education. Comparatively, better educated mothers have the skills and knowledge that allows them to invest more financially and time-wise in their children’s education – especially their daughters (Morrison 2007, 7). A higher level of maternal educational attainment typically starts a virtuous cycle while a low level of maternal educational attainment is most likely the continuation of a vicious cycle⁷. When born into a vicious cycle, it is extremely difficult for a daughter to capture the benefits and opportunities of an education.

In summary, ensuring that girls not only have access to education but that they receive equal treatment and opportunities once they are enrolled has dramatic consequences. The essential point here is that while females benefit on the individual level, the benefits of their success are shared so that their families, communities and economies can benefit too. Therefore, making sure that education systems are free from gender inequalities is in everyone’s interest.

1.2 How Do Gender Inequalities Prohibit Female Education?

Despite the known benefits and laws promoting gender equality, globally “Girls and young women are generally less educated, less healthy and less free than their male

⁶ It has been found that “the effects of maternal education tend to be larger than those for paternal education.” (Morrison 2007, 7).

⁷ Appendix A

counterparts.” (Levine 2008, 1). Adolescent girls face tremendous discrimination and disadvantages, which manifest across many measures of well-being.⁸ In many cases, the lives of girls are shaped by gender biases and inequalities from a variety of sources. When combined, they compound one another to create an effect whose sum is far greater than its parts. The reality is, many girls are caught in a comprehensive web of gender inequality, which limits their opportunities for success and it begins with education.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) provides an excellent visual representation⁹ of the various gender inequality factors which prohibit the educational pursuits and success of females. While the chart is comprehensive in its scope it is not possible to address adequately all of the factors. Therefore, this paper will focus on exploring three factors whose presence can be measured objectively: pregnancy, domestic time burden and parental human capital investment. They are not attitudinal nor subjective and can be measured through concrete, quantitative metrics. This shared quality allows the investigation to probe beyond the magnitude of their impact to try to expose the underlying causal mechanisms.

The factor of pregnancy in regard to educational opportunities seems fairly straightforward. In many areas around the world, the ‘biological suitability’ of women as wives and mothers undermines support for their education (Herz and Sperling 2004, 43). Their predestined future requires domestic skills to maintain a household and raise children – which are not learned through formal education. Also, once a girl is a mother, there is less time and financial resources to pursue educational opportunities. Overall, the biological capacity to be a

⁸ Blackden, C. M., S. Canagarajah, S. Klasen, and D. Lawson, 2007; Burton, Patrick, 2008; Herz and Sperling 2004; King, Elizabeth M. and Andrew D. Mason, 2001; Levine, Ruth, Cynthia B. Lloyd, Margaret Greene, and Caren Grown, 2008; Unterhalter, Elaine, 2005

⁹ Appendix B

mother produces gender inequality in education because it reinforces the traditional gender role for females, limiting their ability to participate and achieve in the educational arena.

The second gender inequality factor that will be examined is the domestic time burden, which is based on the fact that 'girls are needed for household chores' (UNESCO 2005). The sexual division of labor, especially across the developing world, means "women bear the brunt of domestic tasks: processing food crops, providing water and firewood, and caring for the elderly and sick." (Blackden 2003, 6). As these activities are not 'productive' and outside the formal labor market, it is "estimated that 66 percent of female activities in developing countries are not captured" – meaning they are not only economically invisible but they are overlooked by politicians and policy makers as well (Blackden and Canagarajah 2003a, 6). Girls provide invaluable free labor to their households and "The lack of access to basic infrastructure, and particularly water supplies, extracts the greatest toll on girls." (Levine 2008, 2). When compared, "girls spend much more time performing housework than boys" and without the political will to prioritize policies for their benefit, household responsibilities often take priority over school (Levine 2008, 26).

The final gender inequality factor that will be explored is parental human capital investment. This refers to the time, money, and general support that parents invest in their children. This factor combines multiple avenues through which parents can support their children's growth and development, such as providing money for school and eating dinner with their children. In many traditional cultures, sons are seen as the more worthwhile investment because they carry on the family name, they care for parents in their old age and as males are traditionally the breadwinners the rate of return is higher. In many ways, "Educating a girl is therefore perceived as an empty investment." (Levine 2008, 34). This means, "If there is a choice

to be made, poor families are more likely to educate their sons.” (Colclough 2004, 5). Overall, the general tendency for both parents to invest less in their daughters places them at a disadvantage in educational access and performance.

While these gender inequality factors are diverse each ultimately prohibits the opportunity to succeed in school and use education as a tool of transformation. While gender inequality in education can be devastating at the individual level, it has the larger impact of denying society the positive externalities that come with an equitable educational environment. Failing to address gender inequality in education is a missed opportunity to capitalize on the potential and contributions of women. Therefore with South Africa achieving parity it is important to probe for the presence of gender inequalities and explore their relationship with educational outcomes. This paper will explore the factors of gender inequality in education outlined here in a quantitative manner and provide insights into the experience of female learners.

1.3 South African education: Past and Present

Prior to investigating educational outcomes in South Africa, it is necessary to provide context, both past and present, on the educational system. In 1799, the first school for ‘Africans’ was established by missionaries and this remained the norm until the National Party was elected in 1948 (Martineau 1997, 384). The policy of Bantu Education was introduced in 1953, which “removed the control of education for African students from the various missionary organizations and centralized its control with the government.” (Martineau 1997, 384). Under this system, it was standard to track boys and girls in ‘gender appropriate’ training so there were “different histories of education experienced by girls and by boys.” (Truscott 1992, 11). Despite

the limitations, female enrolment dramatically increased so that from 1970-1990, roughly 50% of the learners enrolled at the primary and secondary levels were female (Unterhalter 1991, 74-76).

Following the end of apartheid in 1994, South Africa's educational system underwent drastic changes. With the South African Schools Act in 1996, "The right of access to education was constitutionally guaranteed" for all citizens (Shindler 2007, 136). By 2007, the public school system accommodated over 12.3 million learners in 26,562 schools, 6,000 of which were secondary schools (South African Department of Education 2008, 2).

In regard to gender, the GPI for primary school has been relatively stable from 1997 (0.972) to 2007 (0.966)¹⁰, indicating that gender parity in primary school enrolment has been achieved, though there are marginally more boys than girls (Department of Education 2007, 16). At the secondary school level, the GPI was 1.058 in 2007 which means there are slightly more females. This is the result of "more male than female learners in the school system repeating some of the lower grades." – which accounts for the slight male advantage in the primary school GPI (Department of Education 2007, 16). Across total school enrolment (from Grade 1 to Grade 12) the GPI was within the normal range at 1.006 in 2007, which "indicates that gender parity has been achieved" in total school enrolment (Department of Education 2007, 16).

Until 2008, the Senior Certificate Examination (SCE) or 'Matric', marked the completion of secondary school (Department of Education 2007, 34). Passing the SCE at the higher grade level earns the learner entrance into a tertiary level institution. While the standard SCE pass rate "improved significantly from 53% in 1991 to 65% in 2007" the SCE pass rate at the higher grade fell from 17.2% in 1991 to 15.1% in 2007 (Department of Education 2007, 34). Of those who passed the SCE, "the number of female learners passing Grade 12 is higher than their male

¹⁰ "Gender parity is considered to have been attained when the GPI lies between 0.97 and 1.03" (South African Department of Education 2007, 16).

counterparts” and this “trend was consistent across all provinces from 2002 to 2006”

(Department of Education 2007, 17).

Across the adult population, literacy rates demonstrate the consequences of past educational policies. The Department of Education’s 2008 report states “In 2006, some 10.5% of the adult population was totally illiterate and 14.6% of the adult population was, to varying degrees, functionally illiterate, as they had dropped out of school before completing Grade 7.”

(Department of Education 2007, 25).¹¹ Thus, across South Africa in 2006, 75% of the adult population qualifies as ‘literate’ (Department of Education 2007, 26)¹². Amongst those adults classified as totally illiterate, “8.3% of men are totally illiterate, 12.3% of women are illiterate – reflecting a very high gender disparity of 1.49” (Department of Education 2007, 27). It is safe to conclude that the higher illiteracy rate for women is the result of tracking girls in schools and training them to work as low-skilled domestic labor.

Therefore, this review of South Africa’s educational history and present condition suggests that the government has had success in its battle addressing educational inequalities. There has been a significant decrease in grade repeat and failures and females are achieving educational success at the rates of their male peers. However, despite the government’s successes, most notably the increase of female pass rates, it is obvious that there remains much work to be done. In particular, the literacy rates of the adult population demonstrate how systematically discriminating against female learners has left lasting challenges for present day South Africa to surmount.

¹¹ Measuring literacy levels can be time consuming and expensive so proxy measures are commonly substituted. The standard proxy for “total illiteracy is when a person has no formal education, while a proxy measure for functional literacy is the attainment of a Grade 7 level of education.” (South African Department of Education 2007, 25).

¹² The average literacy rate across countries with similar development levels is 76.4% (South African Department of Education 2007, 26).

1.4 Framework for Investigation

Now that the background information on the importance of gender equality in education, the mechanisms of gender inequality in education and an overview of South Africa's education system have been provided it is necessary to briefly outline what will be addressed in the rest of the paper. Chapter two will consist of an examination of gender parity in enrolment. It will consider South Africa's rates in a variety of geographic, economic and historical contexts and will provide insights into South Africa's true achievement.

Chapter three explores whether the gender parity within enrolment rates is present in other educational outcomes, particularly measures of achievement. It finds that there are no significant differences in other educational outcomes and rather, that there is gender equity in diverse measures of educational achievement. The fourth chapter uses data from the Cape Area Panel Study (CAPS) to determine whether the three gender inequality factors discussed above are present in the lives of adolescent females in one part of South Africa, Cape Town. It seeks to determine whether young women are disadvantaged relative to young men in terms of pregnancy, domestic chores and parental investment. The investigation conclusively finds that there are significant gender differences across these measures of inequality and that females face significant disadvantage.

The fifth chapter considers the relationship between the three gender inequality factors and the outcome of educational attainment. The examination finds that there are significant gender differences but that the gender differences display a disadvantage for males. For each of the gender inequality factors, the negative impact on educational attainment is larger for young men than women. This surprising finding is explained through enrolment rates, in which young men who have made someone pregnant or who receive a low level of parental investment are

less likely to be enrolled than young women in the same circumstances. This suggests that there is something occurring socially which encourages young women to remain in school, despite difficult circumstances. The sixth chapter explores the relationships between the three gender inequality factors and other educational outcomes. The investigation finds that the presence of these factors does not result in intra-gender disparities.

2. Gender Parity in Enrolment

Over the last thirty years, the development community has focused intently on the gendered nature of the educational enrolment in sub-Saharan Africa. Regional statistics paint a dismal picture of the vast gender disparities, as “more than half of girls – 54 percent – do not complete even a primary education.” (Herz and Sperling 2004, 18). If an African female makes it through the primary level, this will likely be the end of her education as “only 17 percent of girls in Africa are enrolled at the secondary level.” (Herz and Sperling 2004, 18). Furthermore, studies have found that globally, the region made the least progress in rectifying these gender gaps (United Nations 2003/4). Within this context, South Africa’s achievement of gender parity in total school enrolment and more females, at the secondary level, appears to be extraordinary.

The problem with these statistics and facts is that they treat sub-Saharan Africa as a homogenous entity when in fact there is great diversity in the culture, social structure and economic development. By reporting educational statistics that are regional, South Africa’s achievements are essentially hidden. If South Africa’s achievements can be glossed over, this naturally raises the question, are these achievements truly anomalous or do other countries have similar hidden achievements?

To truly assess South Africa’s enrolment rates, they need to be considered in the context of three groups – the sub-Saharan African region, other middle-income countries and OECD countries. Comparing South Africa’s outcomes regionally will provide a clearer picture of the true patterns and whether South Africa is the only geographic outlier. Alternatively, examining middle-income and OECD countries will provide an economic context – one comparable and the other aspirational. This will provide insight as to whether South Africa’s achievements are related to economic strength. Next, historical enrolment trends in South Africa will be compared

across the region and other middle-income countries. This will provide an understanding the relationship between gender parity in enrolment and GDP/capita over time. Overall, examining enrolment rates from multiple angles will provide an understanding of the current circumstances, and how that has come to be.

2.1 Geographic Comparison

In 2008, the South African Department of Education reported that the GPI at the primary level is .966, 1.058 at the secondary level and 1.006 for total school enrolment (Grade 1 through Grade 12) (Department of Education 2008, 16). As this statistic is the ratio of the male value to the female value of a given indicator, it is a measure that can be used in cross-country evaluations. Comparing South Africa's enrolment rates across geographic, economic and historical contexts will reveal important insights into whether South Africa's achievements are truly unique.

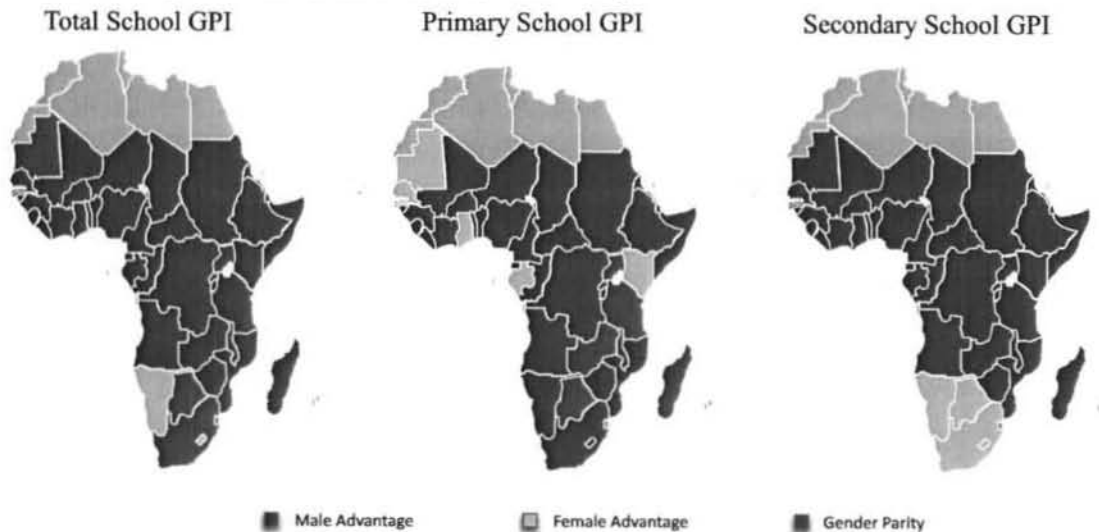
Across the sub-Saharan region, there are vast differences in geography, culture and wealth – all of which influence the priority of education and who participates. There are dramatic differences in the GDP/capita across the region with 2008 levels ranging from \$154 (Burundi) to \$27,130 (Equatorial Guinea)¹³. Despite this wide range, 81% of the region has a GDP/capita of less than \$3000/year and 78.5% has a GDP/capita of less than \$2000/year¹⁴. Providing equitable access to education to a population requires financial investment from both the government and individuals. Therefore, my hypothesis in regard to sub-Saharan Africa's enrolment is that the higher a country's GDP/capita the more likely it is that they will be able to achieve gender parity in enrolment.

¹³ UN Division of Statistics, *accessed April 7, 2011*

¹⁴ Percentages of countries with GDP/capita of less than \$3000/year and \$2000/year are based on 43 countries in sub-Saharan Africa with available data. UN Division of Statistics, *accessed April 7, 2011*.

Across the region ten countries (20%), including South Africa, achieved gender parity in total school enrolment. Thirty-six of the countries (73%) had a male advantage and three (6%) had a female advantage. At the primary school level, fifteen countries (30%) were able to achieve gender parity in enrolment. Thirty-one (63%) of the countries had a male advantage, including South Africa, and three (6%) had a female advantage. In secondary school enrolment, only one country (2%) was able to achieve gender parity. Conversely, forty-one countries (83%) had a male advantage and seven (14%) had a female advantage. Figure 1, illustrates the GPI for each country in the region at each enrolment level. As can be seen, the male advantage is consistent across the majority of the region at each school level. Variation is displayed in regional concentrations along the Western, Eastern and Southern coasts with the advantage changing at each enrolment level.

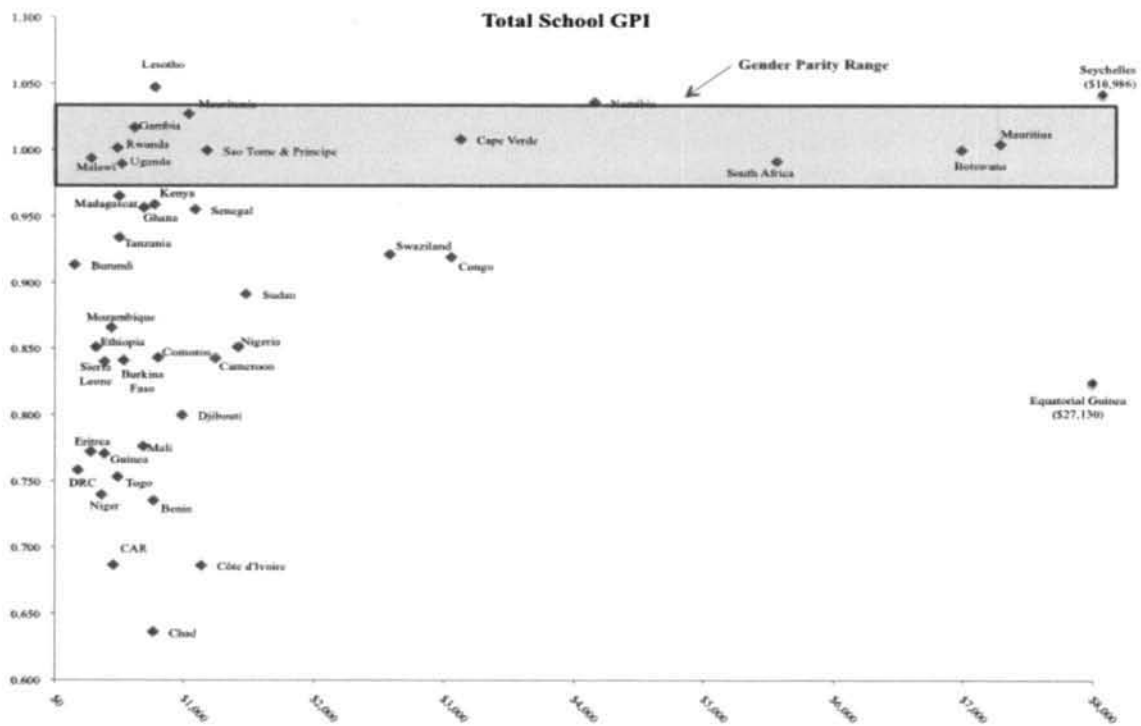
Figure 1: Gender Parity Index for sub-Saharan Africa (UNESCO UIS)



As reported by the Department of Education, in South Africa more males repeating grades in primary school results in a female advantage at the secondary level. Thus, while equal proportions of males and females enter the school system, a higher proportion of females transition to the secondary level (Department of Education 2008, 16). The countries with a

female advantage at the secondary level all have parity or a male advantage in primary school enrolment. This shared quality implies that there is a micro-regional trend of more females a higher progressing to the secondary level because, as the map demonstrates, this is the exception rather than the rule. Furthermore, the geographic concentration of this pattern suggests that something unique is occurring regionally and it could be investigated whether the cause in South Africa holds across the other countries.

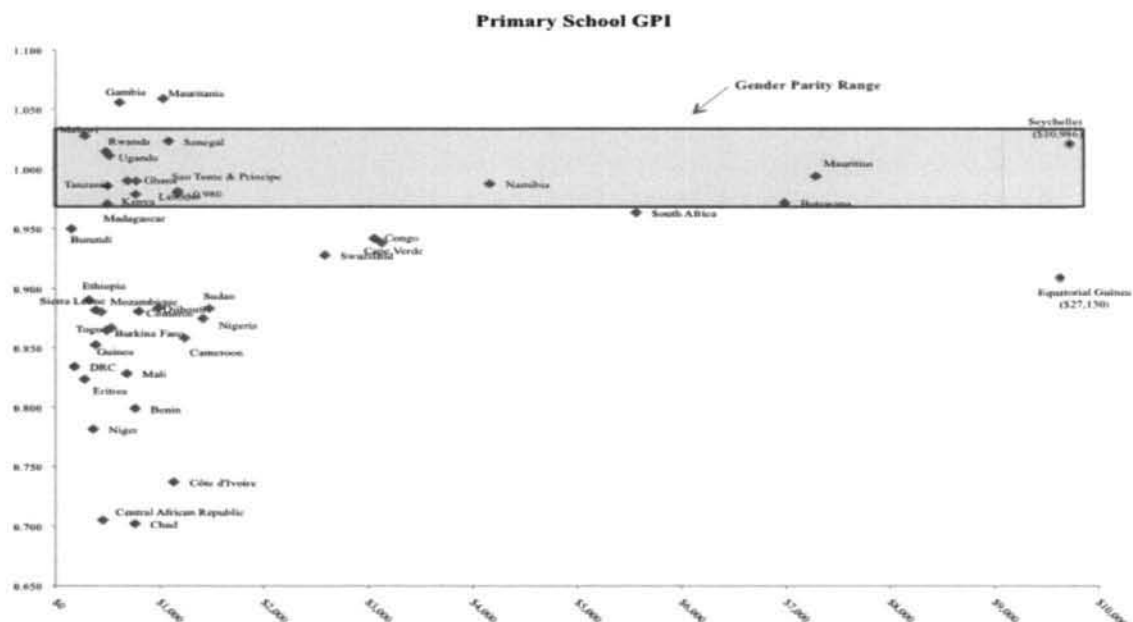
Figure 2: Total 2008 School GPI by 2008 GDP/capita for sub-Saharan Africa (UNESCO UIS)



The concentration of countries with a GDP/capita below \$2000/year is visible in figures 2, 3 and 4 – all of which illustrate the GPI value relative to the GDP/capita. All of the countries at the high end of the GDP/capita range, with the exception of Equatorial Guinea, achieve gender parity. However, though it is less common, a low GDP/capita does not translate into failure to achieve gender parity. At the total and primary school levels, a few low GDP/capita countries are

able to achieve gender parity. Thus, the conclusion that can be drawn is that being a high GDP/capita country is associated with achieving gender parity in total and primary school enrolment. While there are a few exceptions, overall this also demonstrates that a male enrolment bias is more common in low GDP/capita countries.

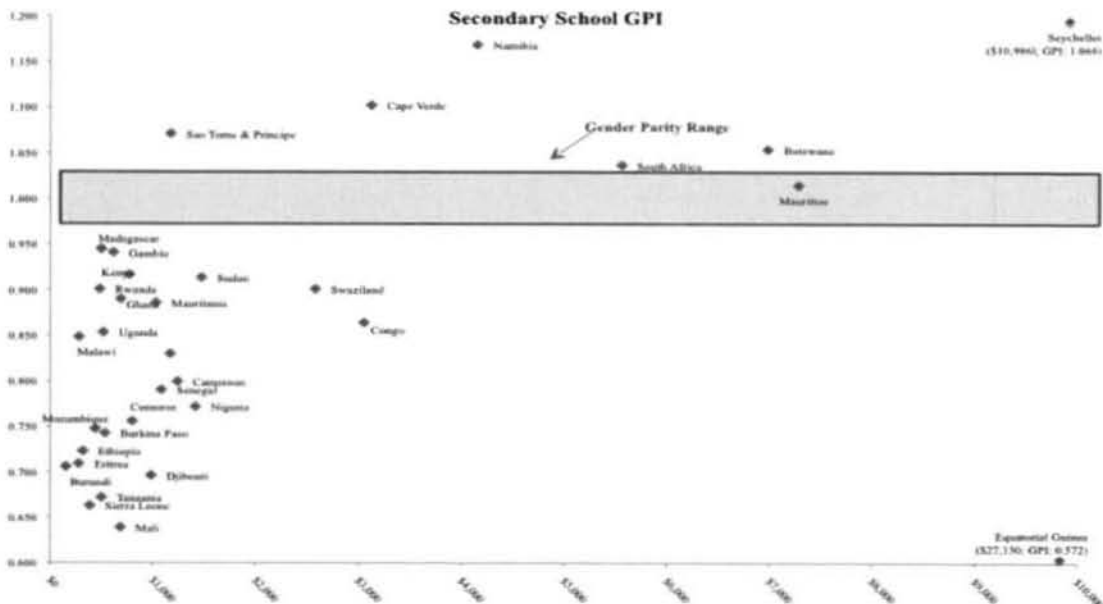
Figure 3: Primary School 2008 GPI by 2008 GDP/capita for sub-Saharan Africa (UNESCO UIS)



At the secondary level, only Mauritius, is able to achieve gender parity in enrolment.

Figure 4 illustrates the link between a high GDP/capita and female enrolment at the secondary level as six of the seven countries with gender parity or a female advantage have a GDP/capita above \$3000/year. Conversely, with the exception of Equatorial Guinea and Congo, all of the countries with a male advantage at the secondary level have a GDP/capita of less than \$3000/year. Taken together, this evidence suggests that a high GDP/capita becomes more critical to female enrolment as education progresses.

Figure 4: Secondary School 2008 GPI by 2008 GDP/capita for sub-Saharan Africa (UNESCO UIS)



While it will not be explored in this paper, the next step would be to consider is whether this trend continues to strengthen at the tertiary level. Overall, the relationship between gender parity and GDP/capita in sub-Saharan Africa demonstrates that for low GDP/capita countries, gender parity efforts are focused on the primary level. For countries further along in their economic development, these efforts have been extended to the secondary level. In summary, the geographic context illuminates that while South Africa is not the sole country achieving gender parity in total school enrolment, it is an unusual feat. When the region is narrowed to regional countries with a comparable GDP/capita, this accomplishment becomes commonplace.

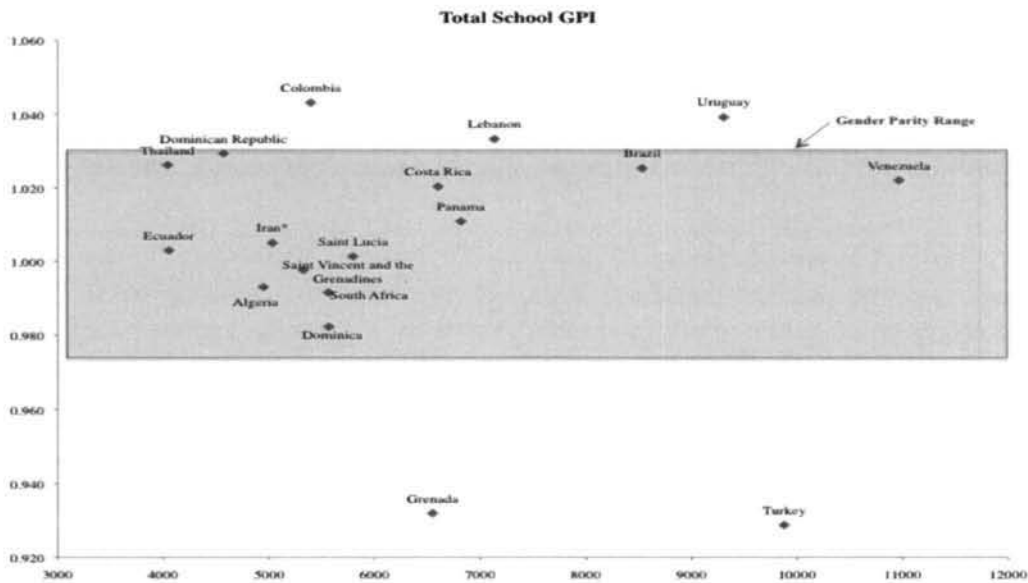
It is worthwhile to note that for the majority of countries able to achieve gender parity in total school enrolment, this achievement is driven by a large female advantage at the primary level. South Africa however, has a male advantage at the primary level. Thus, in the South African case, the achievement of gender parity in total school enrolment is actually driven by a female advantage at the secondary level. This accomplishment is very rare within the total

region. This final piece of evidence firmly cements that South Africa's enrolment rates, at all levels of education, are unique within the region.

2.2 Economic Comparison

The next level of examination is to compare South Africa's enrolment rates to countries with similar GDP/capita rates. To choose comparable countries, GDP/capita rates were compared from 2002 to 2008. These dates were chosen to align with the timeframe of the Cape Area Panel Study. Within this time period, 17 countries were within plus or minus 10 rankings of South Africa¹⁵. These countries are comparable not only because their GDP/capita rates but because there is similarity across their growth rates.

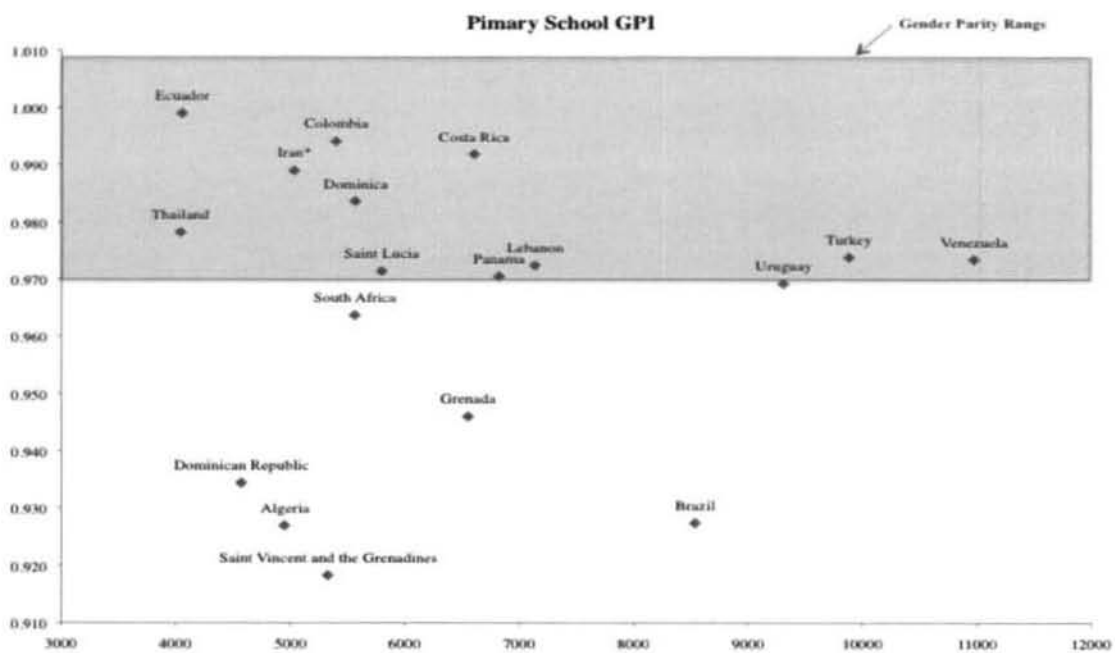
Figure 5: Total School 2008 GPI by 2008 GDP/capita for countries with a rate similar to South Africa (UNESCO UIS)



¹⁵ Algeria, Brazil, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, Grenada, Iran, Panama, Saint Lucia, Saint Vincent and the Grenadines, Thailand, Turkey, Uruguay and Venezuela.

Figure 5 illustrates the relationship between GPI and GDP/capita for countries with rates that are similar to South Africa. For total school enrolment, thirteen countries (72%) achieve gender parity. Only two countries (11%) demonstrate a male advantage in total school enrolment while three (16.6%) have a female advantage. Compared to sub-Saharan Africa, more countries achieve gender parity and fewer display a male advantage in total school enrolment – meaning more equitable enrolment.

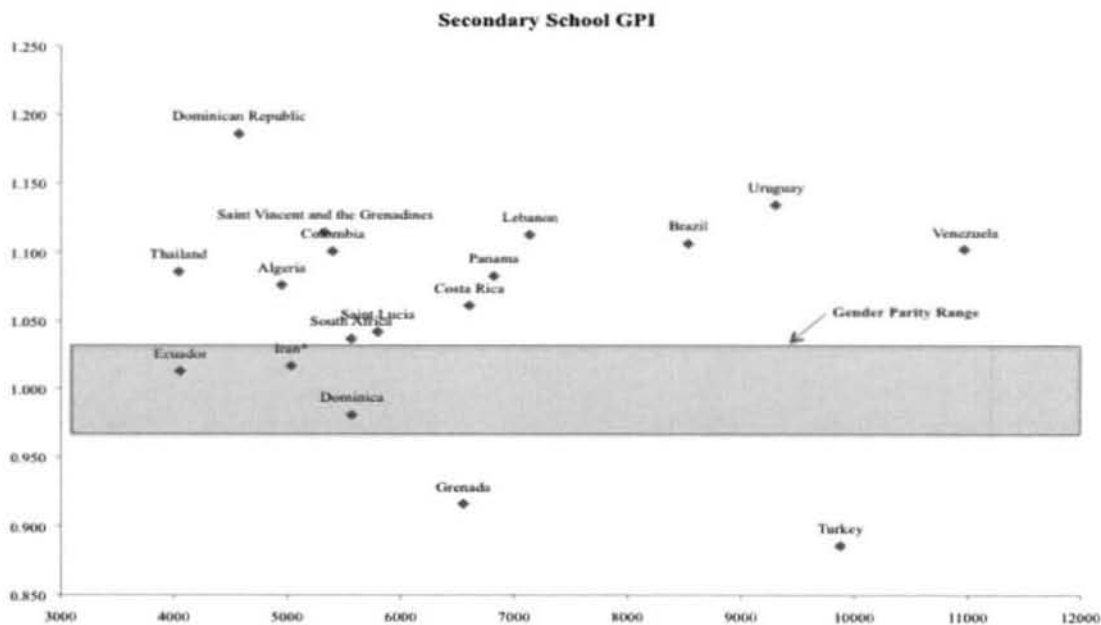
Figure 6: Primary School 2008 GPI by 2008 GDP/capita for countries with a rate similar to South Africa (UNESCO UIS)



For primary school enrolment, eleven countries (61%) achieve gender parity. Seven of the countries (39%) have a male advantage and none display a female advantage in primary school enrolment. At the secondary level, only three countries (16.6%) are able to achieve gender parity. Two countries (11%) have a male advantage and thirteen countries (72%) have a female advantage in secondary enrolment. This series of figures (5, 6 and 7) demonstrates that in the transition from the primary to secondary level, fewer countries are able to achieve gender

parity and more countries display a female advantage. This indicates that, even for middle-income countries, attaining gender parity at the secondary level is difficult. The female advantage suggests that at the secondary level a relatively high GDP/capita is less influential in achieving gender parity.

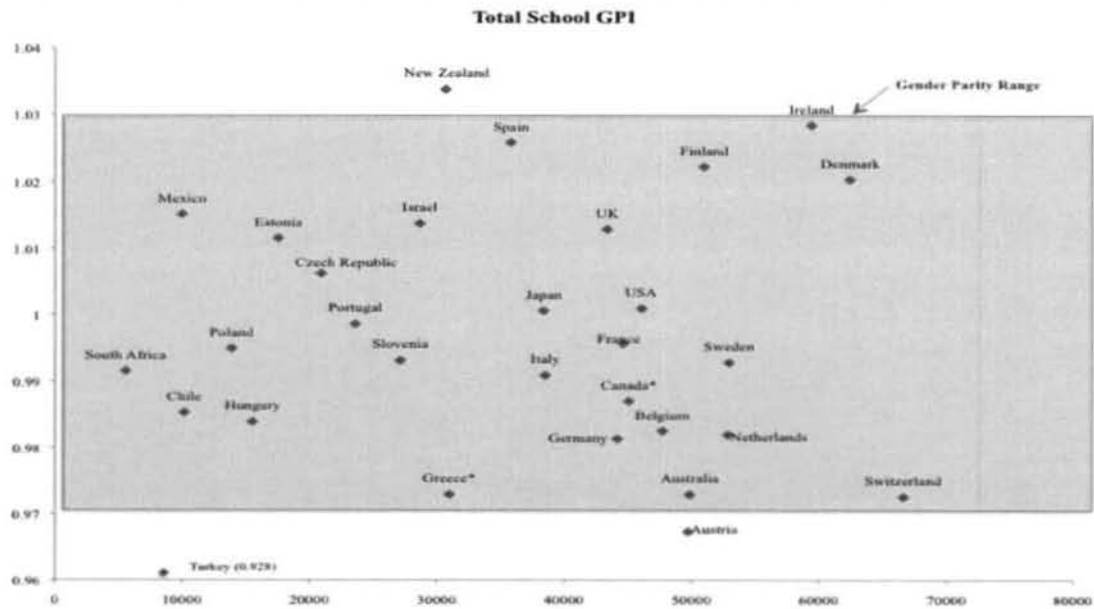
Figure 7: Secondary School 2008 GPI by 2008 GDP/capita for countries with a rate similar to South Africa (UNESCO UIS)



Therefore, the pattern for this set of middle-income countries is to achieve gender parity at the total and primary school levels and display a gender disparity at the secondary level. While a few countries achieve gender parity at the secondary level, the majority displays a female advantage. Males repeating primary grades could cause this, but as only a few countries have a male advantage at the primary level, is it most likely the result of greater male attrition at the secondary level. As these countries are similar in GDP/capita to South Africa and can thus be labeled as “developing”, perhaps this scenario is linked to gender disparities in the demand and employment of unskilled or semi-skilled laborers. Overall, South Africa’s pattern of gender

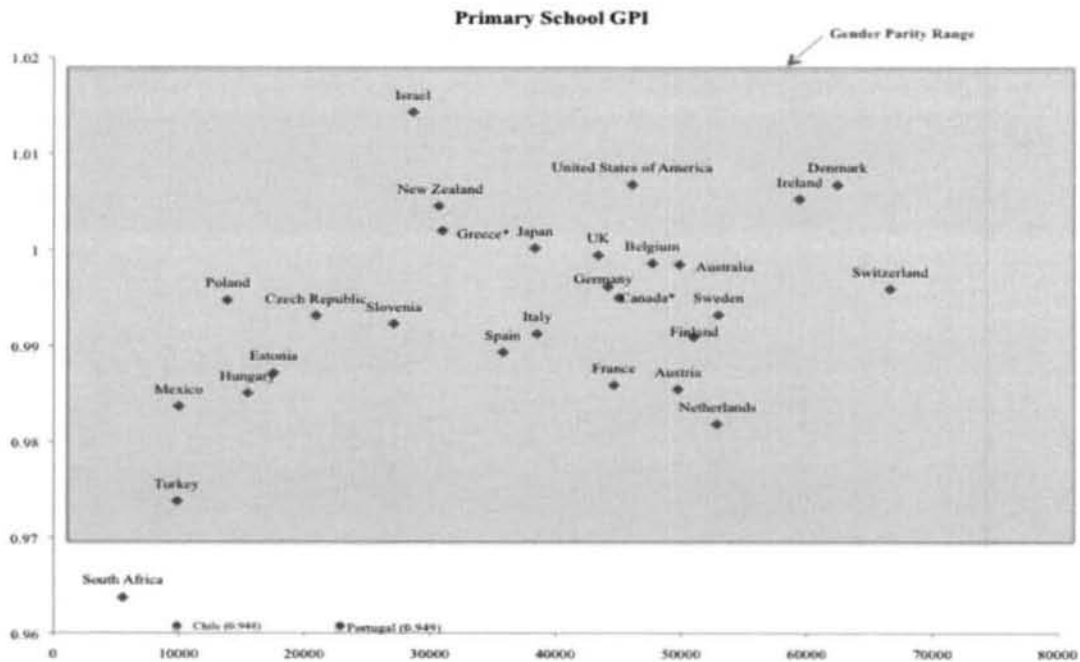
enrolment at the primary and secondary levels appears to be consistent with the trends of other middle-income countries.

Figure 8: Total School 2008 GPI by 2008 GPD/capita for OECD countries and South Africa (UNESCO UIS)



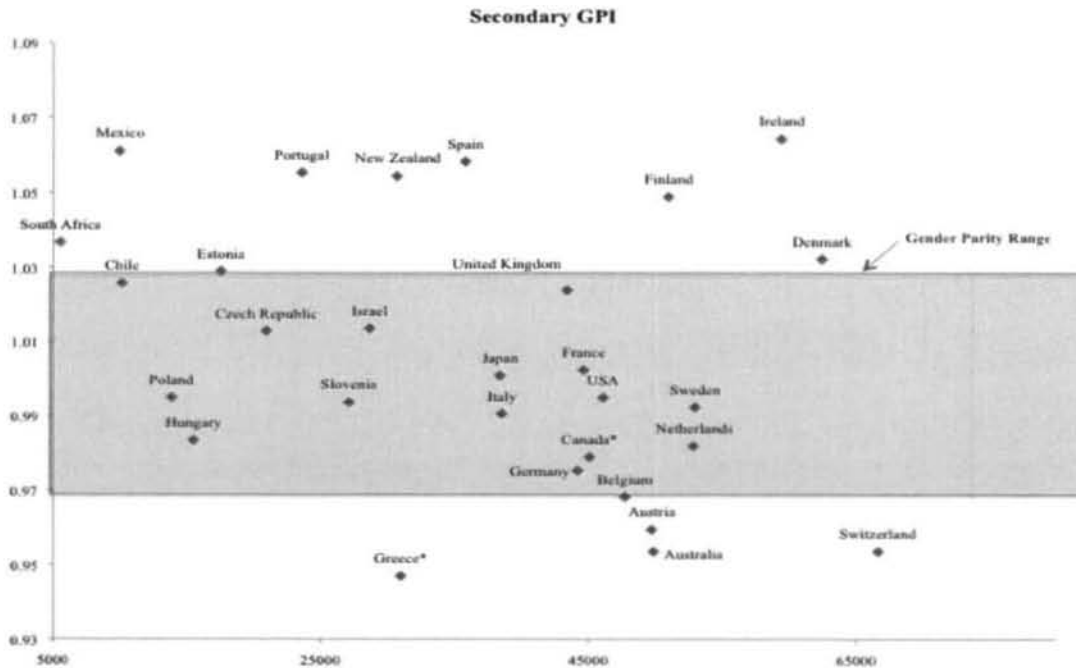
Next, South Africa's rates will be considered in the context of the OECD countries in place them in the context of high-income countries. In total school enrolment twenty-eight, of the thirty-one, countries (90.32%) achieve gender parity. Comparatively two countries (6.25%) have a male advantage and one (3.23%) had a female advantage in total school enrolment. As can be seen in figure 8, only three countries lie outside of the gender parity range, with Austria (male advantage) and New Zealand (female advantage) being -0.003 and +0.004, respectively, away from attaining parity. In primary school enrolment, twenty-nine countries (93.55%) achieve gender parity and two, Chile and Portugal, (6.45%) have a male advantage.

Figure 9: Primary School 2008 GPI by 2008 GDP/capita OECD countries and South Africa (UNESCO UI)



At both the total and primary school levels, the majority of the OECD countries lie within the gender parity range and figures 8 and 9 demonstrate that the relationship between GPI and GDP/capita are very similar. However, figure 10 shows that at the secondary level this relationship results in a very different pattern. At the secondary level, only seventeen countries (54.84%) are able to achieve gender parity. Conversely, six countries have a male advantage (19.35%) and eight countries (25.81%) have a female advantage. Thus, just over half are able to achieve gender parity while the rest display a gender disparity. In terms of their GDP/capita, the countries outside the gender parity zone are scattered across the GDP/capita spectrum and not concentrated at either end of the range.

Figure 10: Secondary School 2008 GPI by 2008 GDP/capita OECD countries and South Africa (UNESCO UIS)



Overall, it can be concluded that achieving gender parity at the secondary level is difficult - even amongst the world's highest income countries. In the OECD examination, if gender parity is not achieved it is more common to display a female advantage at the secondary level. As this is consistent with the findings of the middle-income countries perhaps it is the same cause in both cases. Furthermore, in both groups the observations are spread across the GDP/capita spectrum. This supports the conclusion that once a relatively high GDP/capita has been reached other factors influence whether gender parity is achieved at the secondary level. Perhaps, once a stable economic level is attained, other social, cultural, or labor force factors become more influential in attaining gender parity at the secondary level.

2.3 Historical Comparison

Thus far the examination has focused solely on GDP/capita and GPI values from 2008. Comparing countries across a single year provides a snapshot of the current circumstances. By extending the examination over the historical context, it is possible to understand their progression. This will allow for much deeper insights into the real influence of GDP/capita on primary and secondary enrolment.

Figure 11 charts the changes in South Africa's primary school GPI value for the total population from 1976 to 2009 and the general trend has been for the GPI value to decrease. In 1976, South Africa achieved gender parity, although at the high end of the spectrum, at the primary level with a GPI value of 1.03. The GPI value remains consistently within the gender parity range until 2000 when it falls to a value of 0.95. This drop below parity coincides with a sharp GDP/capita decrease from 1995 value. After 2000, the GPI value remains just below gender range with a slight male advantage.

Therefore, the general trend is a rising GDP/capita and a falling primary GPI value, which suggests that there has been an inverse relationship between the two metrics. However after 2000, even though the GDP/capita rises back above the 1995 level, the GPI does not return to the parity range. In 1985 when the GDP/capita fell sharply from its 1980 level, the GPI value increased. Conversely in 2000 when the GDP/capita fell from its 1995 level, the GPI value decreased. Overall, this seems to indicate that GDP/capita was influential on the GPI value until 1995. After this point in time, the GPI value has not budged despite major gains in GDP/capita. This supports the previous conclusion that GDP/capita is influential until a stable economic level is reached and after this point, other factors are more influential. As this conclusion was previously drawn about the secondary level, the evidence found here adds further support to that finding.

Figure 11: Historical GDP/capita by Primary GPI (Total Population) for South Africa (Central Statistics Service & Statistics South Africa)

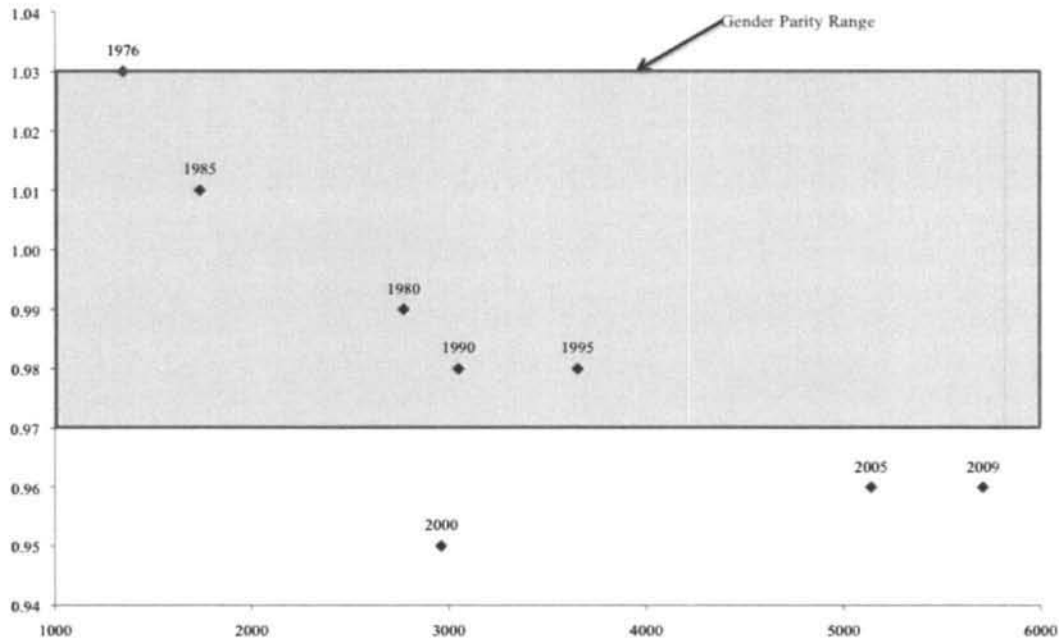
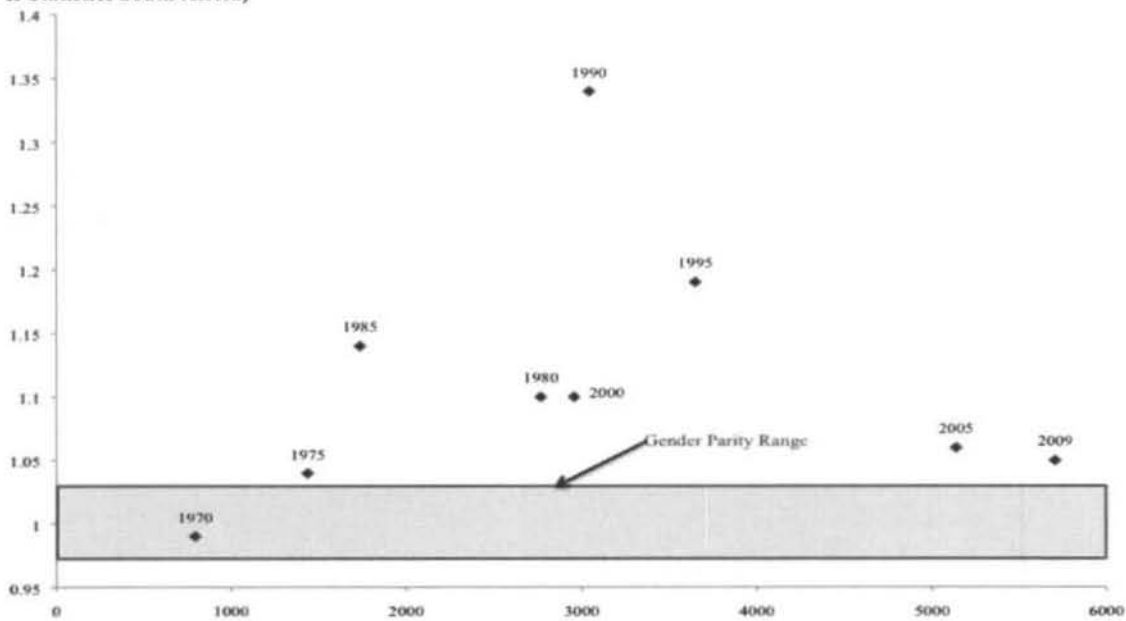


Figure 12 illustrates the relationship between GDP/capita and secondary enrolment in South Africa between 1970 and 2009. The general trend is for the GPI value to increase, peak and then decrease while the GDP/capita steadily increases. The only point in this period when gender parity is achieved is in 1970. From that point on, there is a distinct, and sometimes very pronounced, female advantage. From 1980 to 2000, the GPI value remains above 1.10 and peaks at 1.34 in 1990. This peak cannot be attributed to fluctuations in birth rate and therefore is the result of other factors.

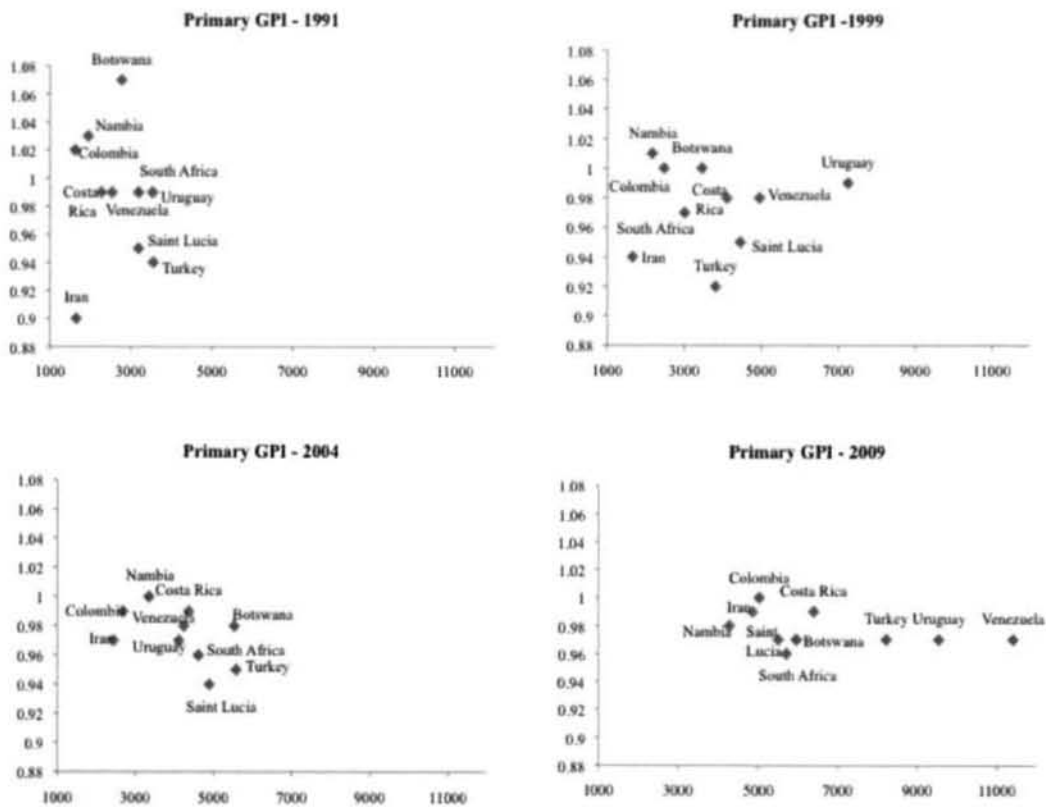
Figure 12: Historical GDP/capita by Secondary School GPI (Total population) for South Africa (Central Statistics Service & Statistics South Africa)



As mentioned during the discussion of the primary school GPI, there are sharp decreases in the GDP/capita from 1980 to 1985 and 1995 to 2000. The changes in the secondary GPI value mirror those of the primary GPI, with an increase from 1980-1985 and a decrease from 1995-2000. However, at the secondary level, these GPI shifts are consistent with the general trend, which is not the case at the primary level. From 2000, there has been little change in the GPI value despite large gains in GDP/capita and the GPI value remains just outside the gender parity range. This also supports the conclusion that once a stable level of economic development has been attained, GDP/capita becomes less influential on attaining gender parity. Therefore, the overall conclusion is that GDP/capita plays a role in gender parity in enrolment up to a point and after which, other factors gain influence over enrolment levels.

Now that the patterns of South Africa have been examined it is necessary to compare its journey to other economically and geographically similar countries. Nine countries¹⁶ were chosen – seven are middle-income countries and two are within close geographic proximity – to serve as the yardstick for comparison. The changes in GDP/capita and GPI are illustrated for the primary level in figure 13 and for the secondary level in figure 14. The axis values were kept consistent across the time period so that changes and patterns are easier to identify.

Figure 13: GDP/capita by Primary School GPI across multiple countries from 1991-2009 (Statistics South Africa & UNESCO UIS)



In the GDP/capita and GPI values there is a visible shift over the time period. As can be seen, Columbia, Costa Rica, Uruguay, Venezuela and Namibia consistently achieve gender

¹⁶ Botswana, Columbia, Costa Rica, Iran, Namibia, Saint Lucia, Turkey, Uruguay and Venezuela

parity in primary school enrolment. In 1991, six countries achieved parity, three had a male advantage and one had a female advantage. By 2009, all of the countries achieved parity – except for South Africa, which has a slight male advantage. When viewed together, there is an obvious pattern of movement over the time period. In 1991, the data points are heavily concentrated at the low end of the GDP/capita range with vertical GPI value variation. As time progresses, the data points shift so by 2009, they are vertically concentrated within the gender parity range but vary horizontally along the GDP/capita range.

Furthermore, figure 13 illustrates that South Africa's GDP/capita has a relatively small increase over the time period. In 1991, South Africa was positioned at the high end of the GDP/capita range with a GPI of .99. By 2009, its relatively slower rate of GDP/capita growth places it at the low end of the GDP/capita range and it is the only country outside the gender parity range. The only country with a slower GDP/capita growth rate is St. Lucia and it is able to achieve gender parity in 2009 with a score of .97. This comparison suggests that other factors in South Africa, combined with a relative slow GDP/capita growth rate, have negatively impacted gender parity in primary school enrolment.

Figure 14: GDP/capita by Secondary School GPI across multiple countries from 1991-2009 (Statistics South Africa and UNESCO UIS)



As can be seen in figure 16, the changes in distribution at the secondary level exhibit the same general pattern as the primary level. From 1991 to 2009 the GPI values grow increasingly vertically concentrated toward the gender parity range while the GDP/capita values become horizontally varied. However, despite the overall trend of GPI concentration only St Lucia is able to achieve gender in parity with a ratio of 1.03. Given that they experienced the slowest rate of GDP/capita growth this is a surprising finding. Overall, the general pattern found at the secondary level once again suggests that at the secondary level, GDP/capita is less correlated to enrolment and achieving gender parity at this level is more difficult.

Overall, South Africa's historical pattern of enrolment is consistent with comparable countries at the secondary level but is not at the primary level. At the secondary level, most countries are not able to achieve parity and instead display a female advantage. However, at the primary level, most countries display and maintain gender parity. For South Africa, the general trend at the primary level is a decreasing GPI value in which the male advantage grows. This departure from similar countries signals that there is something external to GDP/capita causing this trend. When South Africa's secondary rates were examined alone the pattern seemed troubling and unique. However, the common pattern exposed at the secondary level is extremely interesting as it demonstrates that South Africa's pattern is not unique but rather in line with comparable middle-income countries.

In summary, this examination reveals that South Africa's enrolment rates are regionally anomalous, as a minority of countries achieves comparable GPI values in 2008. Comparisons across economic lines show that a relatively high GDP/capita is associated with achieving gender parity at the primary level. However, at the secondary level gender parity is much more difficult to achieve, regardless of GDP/capita. The examination of secondary level rates suggests that after reaching a relatively stable economic status, other factors play a role in achieving gender parity. However there does seem to be a connection between the type of gender advantage displayed and the GDP/capita at the secondary level. In general, countries with a low GDP/capita displayed a male advantage while countries with a relatively high GDP/capita displayed a female advantage. This seems to indicate that once a stable economic level is attained, a larger proportion of females are enrolled at the secondary level. My guess is that this is most likely due to more economic opportunities and earlier male employment but this is merely a hypothesis and could be an area of further research.

The historical examination revealed several interesting insights regarding the changes in South Africa's enrolment rates over time. At the primary level it is particularly interesting that South Africa's gender parity value has followed a general pattern of decline so it currently displays a male advantage. The comparison with regionally and economically similar countries displayed that the general pattern is to achieve and maintain gender parity, thus making South Africa's trend anomalous in this respect. At the secondary level, South Africa's general trend is in line with the comparison countries and the recent progress toward parity is promising. However, if the trend at the primary level continues to grow increasingly skewed, it could be problematic for enrolment parity. Therefore, policy makers and educationalists need to address this worrisome trend so that this disparity does not continue to grow. If this scenario were to develop, South Africa's enrolment rates will no longer be regionally anomalous and instead will be regionally typical.

Chapter 3: Other Educational Outcomes

The previous chapter firmly established that South Africa's enrolment rates are geographically unique and economically typical. Thus, the next step is to consider other educational outcomes on an international platform. The logic here is to consider whether there are gender differences in other measures of educational achievement. The issue of 'access', as captured by enrolment rates, has long been the focus of researchers and policy developers while less attention has been given to achievement. The previous chapter demonstrated South Africa has conquered the obstacle of participation and this thorough investigation will consider whether South Africa's success of gender parity in enrolment is consistent across achievement related educational outcomes.

The first achievement related outcome to be examined is learner performance in literacy and numeracy evaluations. As with enrolment rates, these evaluations will be considered at national, regional and international levels in order to provide a rich context and yield meaningful insights. The second outcome will focus exclusively within South Africa and will be a comparison of male and female progression rates through the school system. The objective will be to determine whether one gender's progression is more heavily impeded than the others. The final outcome will also focus exclusively on South Africa and it will be an exploration of Matric exams. This will focus on participation, level and pass rates and will consider the exam subjects that males and females write. The objective is to explore whether there are gendered disparities in either performance or subject choice.

3.1 Learner Numeracy and Literacy

The first educational outcome that will be examined is literacy and numeracy scores and the investigation will look to discern whether there are gender disparities in either subject.

Several assessments will be considered so that South Africa's scores can be assessed in the context of its global peers. One evaluation will focus solely on mathematics scores while two others will consider both subject areas.

The first assessment considered is the Trends in International Mathematics and Science Study (TIMSS). This cross-country study was conducted in 1995, 1999, 2003 and 2007 in order to evaluate performance and knowledge in mathematics and science. South African partook in this study in 1999 and 2003 at the eighth grade level. To be comparable to the other numeracy assessments, this report will focus exclusively on the 2003 wave of the TIMSS.

In 2003, 8,912 grade 8 learners from forty-six countries participated in the TIMSS mathematics and science study (TIMSS 2003). In both subjects, South Africa recorded the lowest scores, with an average score of 264 in mathematics and 244 in science – both of which were lower than the 1999 results (TIMSS 2003). Singapore had the highest scores in both subjects, with an average score of 605 in mathematics and 578 in science. As regional comparisons, Botswana scored an average of 366 in math and 365 in science while Ghana scored 276 in math and 255 in science (TIMSS 2003). Botswana, Ghana, and South Africa were the only sub-Saharan countries to participate and were ranked in the three last spots, respectively, in both subject areas (TIMSS 2003).

Table 1: TIMSS 2003 Grade 8 scores (TIMSS)

	Mathematics	Science
South African Average Score	264	244
International Average Score	466	473

Only thirty-four of the countries reported disaggregated score results by gender. In the mathematics section, females outperformed males in nineteen countries scoring an average 7.42 points higher (TIMSS 2003). In the science section, males outperformed females in twenty-eight

countries and on average scored 12.4 points higher (TIMSS 2003). This indicates that not only did males performance better than females in the science assessment, the average score disparity was larger. However, amongst South African learners, boys outperformed girls with an average score 2 points higher in both subject areas, however such a small disparity indicates there is no gender bias (TIMSS 2003). Therefore, though South Africa has the lowest scores, it appears that compared globally there is less gender bias in South African learner performance.

The second assessment of learner literacy and numeracy is through the Southern and Eastern African Consortium for Monitoring Education Quality (SACMEQ). In 2000 and 2007, 15 African countries participated in the SACMEQ, which evaluated learner performance in reading and mathematics with a predetermined mean score of 500. When the results were analyzed, “South Africa’s achievements in these areas were poor.” with learners ranking in the bottom half of the participating countries (Department of Education 2008, 31). To compare learner performance along the gender lines, each country’s disparity has been “calculated by subtracting the boys’ scores from the girls’ scores.” (Saito 2010, 1). When the difference is positive, it indicates that girls earned the better marks and when the difference is negative boys earned better marks.

In South Africa, girls outperformed boys in both subjects in both years. In both waves of the study, the gender disparity was larger in the reading than the math scores (Saito 2010, 2). Additionally, girls in Seychelles, Mauritius, Botswana and Lesotho outperformed boys in both subjects and years. Seychelles reported the largest disparities, in both subjects and years, while the remaining countries displayed disparities similar to that in South Africa’s performance. All of these countries display a female advantage or gender parity in their secondary school enrolment. Perhaps, this distinct female advantage in performance is the result of their enrolment advantage.

Overall, there is no conclusion regarding a gender disparity in numeracy and literacy as one assessment indicates that there is virtually no bias while the second suggests a female advantage.

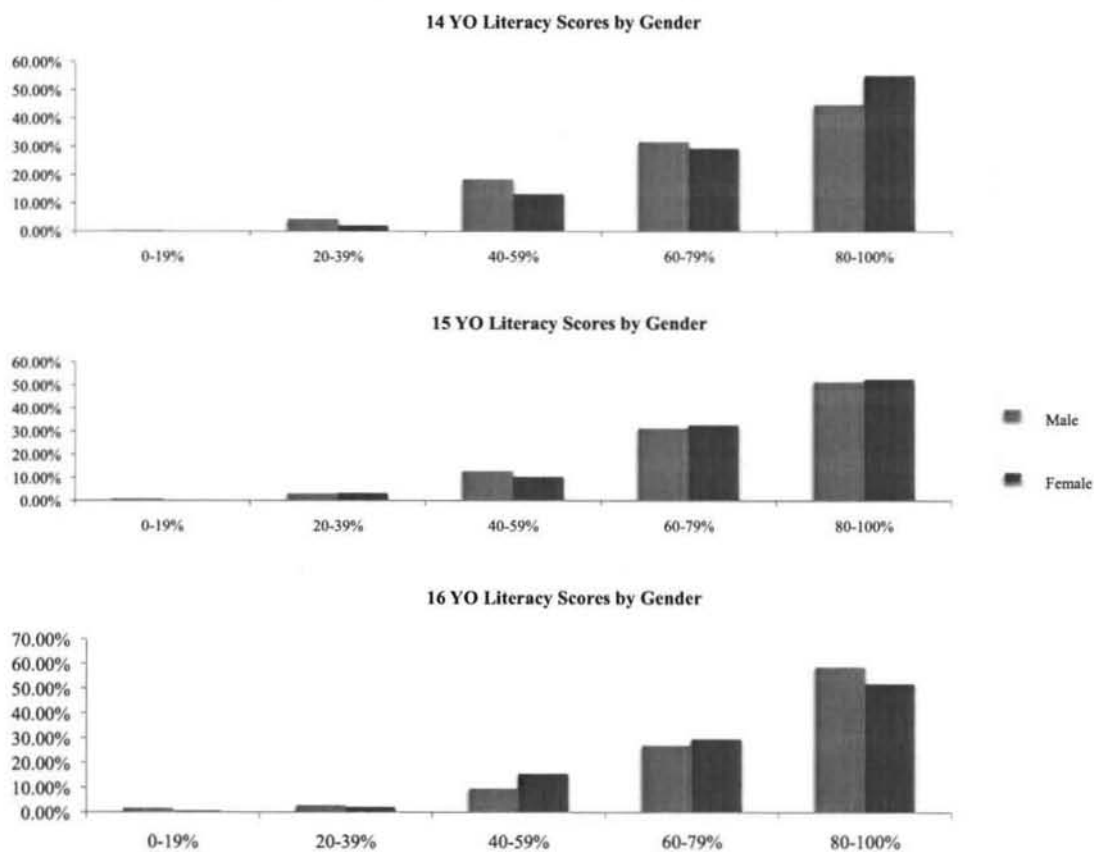
The final measure of learner literacy and numeracy is an investigation into the scores of participant's aged 14 to 16 (to isolate school-going observations) in the first wave of the CAPS conducted in 2002. Participants were asked to complete a series of forty-five questions (twenty-two focused on literacy and twenty-three focused on numeracy) designed to assess their literacy and numeracy abilities. Across the total age group, there is very little difference between male and female scores. Females answer slightly more questions correctly in the literacy evaluation and males had slightly more correct answers in the numeracy evaluation. The mean number of correct answers for the literacy assessment was 16.96 for females and 16.73 for males. While the mean number of correct answers in the numeracy assessment was 8.76 for females and 9.19 for males. This supports the finding that learner's numeracy skills are very weak in South Africa (Department of Education 2008).

Therefore, out of the three assessments considered that examine numeracy performance, two found that there is very little gender difference and one found females perform better. However, the two assessments (SACMEQ and CAPS) that consider literacy both found females to outperform males. While there is not an overwhelming consensus on the gender differences across both subjects, there is in the literacy assessments. Therefore, it can be concluded that this review fully supports the finding that females slightly outperform males in literacy assessments (Marks 2008, 90).

As there is little gender difference in the literacy and numeracy scores of the total cohort, it is necessary to examine the scores by gender and age. Figure 15 conveys that all age groups follow the same general pattern - heavy skewness toward the high end of the score range.

Overall, there is very little variation between the age groups. There are slight gender differences in the 14 year-old cohort, where females perform better, and in the 16 year-old cohort, where males perform better. However, these differences are very small and not statistically significant which suggests that, as with the total cohort, there is no gender bias in the sample's literacy scores.

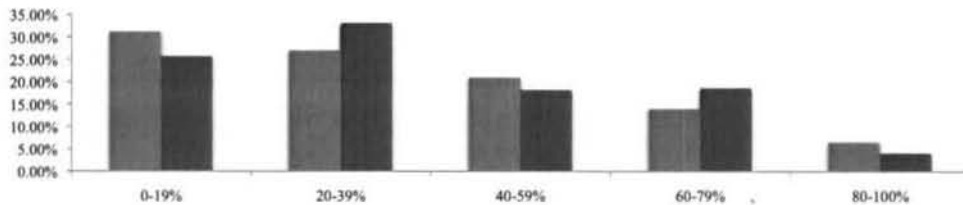
Figure 15: 2002 CAPS Literacy Scores by Gender and Age (CAPS wave 1)



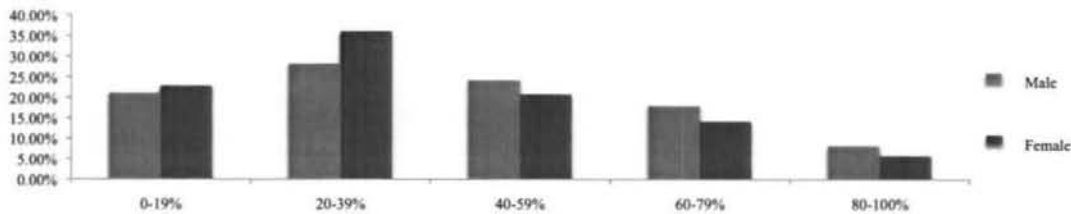
As with the literacy scores, figure 16 illustrates that all age groups follow a general pattern of being heavily concentrated at the low end of the numeracy score range. However, as the participant's age there is a noticeable shift to the higher scores range, indicating that with age participants perform better. As for the gender differences, the chart shows that female scores are more concentrated while there is more variance in the male scores. The major gender differences

occur at the high end of the score spectrum. For the 14 year-olds there is a very small male advantage, which not only increases as participant's age, but it occurs sooner along the score spectrum. This suggests that the gender disparity in numeracy scores widens as participant's age.

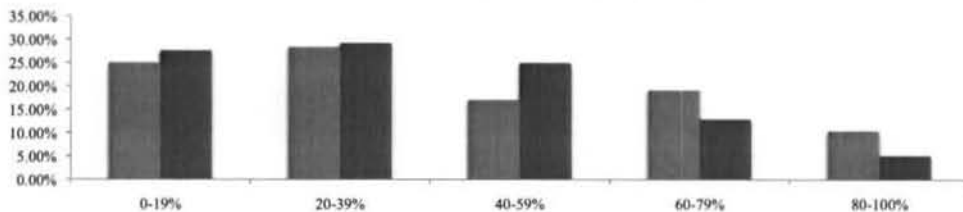
Figure 16: CAPS 2002 Numeracy Scores by Gender and Age (CAPS wave 1)
14 YO Numeracy Scores by Gender



15 YO Numeracy Scores by Gender



16 YO Numeracy Scores by Gender



Overall, these charts demonstrate that literacy and numeracy scores improve as the participant's age increases. In a gender comparison, no differences were found in the literacy scores but in the numeracy scores there is a gap that widens with age. As the effect grows with age, this suggests that a factor that male advantage in numeracy gains influence as learners age.

In summary, this assessment of learner performance across a variety of regions and subject areas indicates that the gender differences in South African performance echo global findings. Female performance is better in literacy assessments and male performance is better in numeracy evaluations. However, in most assessments these differences were very small and it is

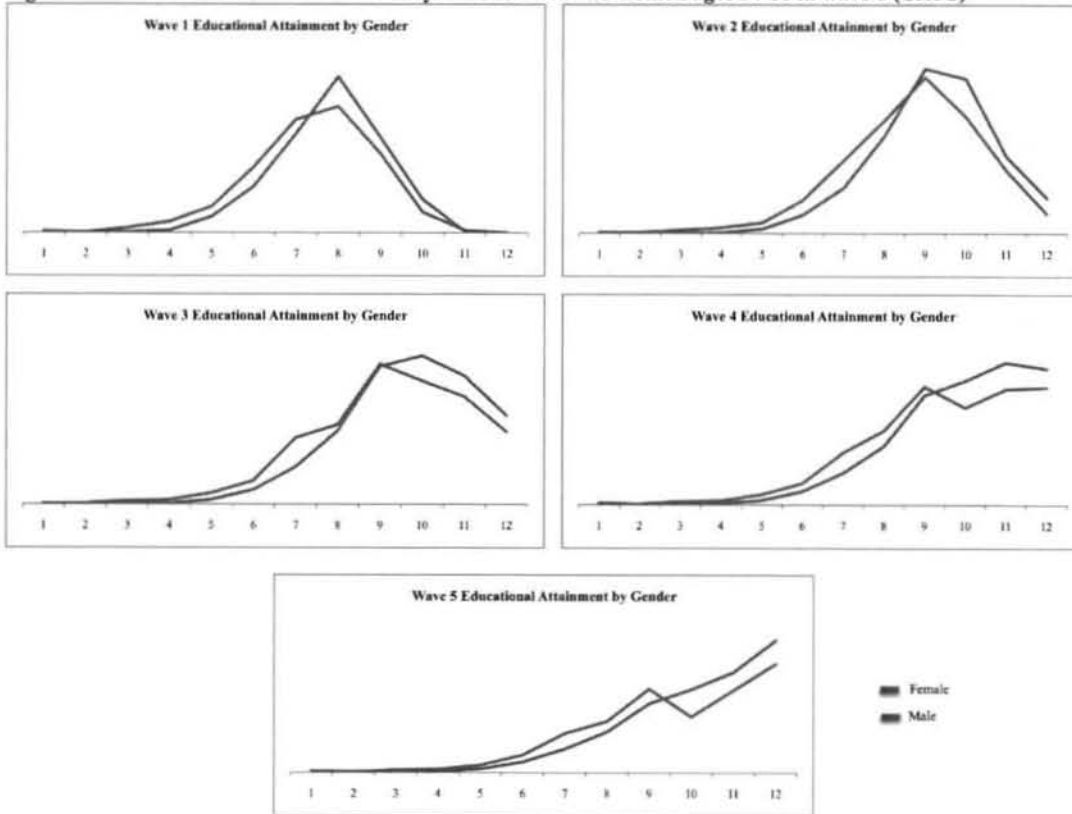
possible to conclude that they are significant. Therefore, while the performance of South African learners lags behind their peers there does not appear to be a gendered effect in performance.

3.2 Educational Progression

Now that it has been established that South African learner's literacy and numeracy performance is not gendered, it is necessary to consider the domestic rate of educational progression. This evaluation will use data from the CAPS and will investigate the educational histories of the fourteen to sixteen year old men and women. The objective is to explore the educational paths of males and females to assess if they are progressing at the same rate and share a common educational experience. The first step in this process is to inspect how male and female educational attainment differs.

Figure 17 displays the educational attainment of the men and women of the cohort in each wave of the study. It is clear that the educational progression of males and females follows the same general pattern and shape. In wave one, for both men and women the peak of the distribution occurs at grade 8. As would be expected, as the waves progress and the cohort ages, the peak shifts down the educational spectrum. By the final wave, the peak for both sexes occurs to grade 12. Despite these similarities, there are several important differences in their experiences.

Figure 17: CAPS Educational Attainment by wave for men and women ages 14-16 in wave 1 (CAPS)

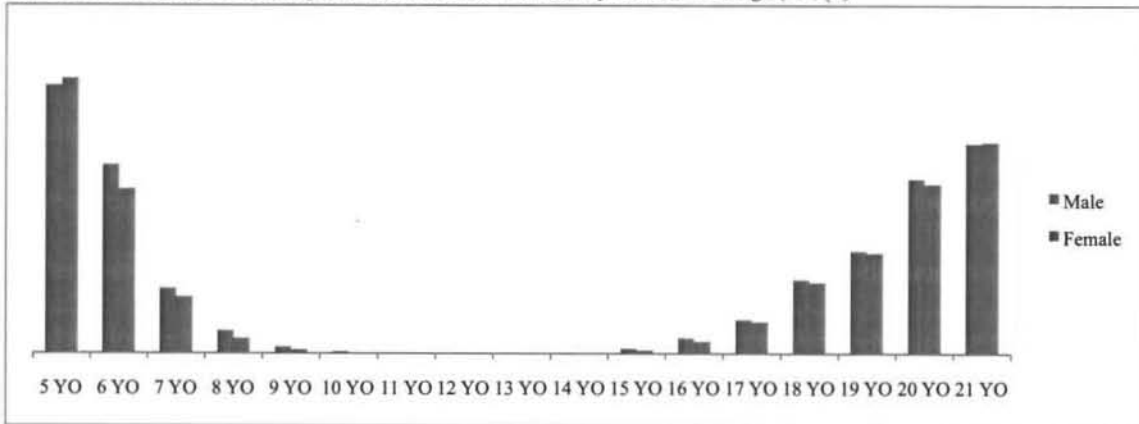


First, in all waves, the male curve begins to steeply incline at a lower educational level than the female curve. This indicates that a larger proportion of males remain in the primary grade levels. Second, after wave 1, there is a consistently a peak at grade 9 in the male sample. This is likely because this is the last year of compulsory education and it is the culmination of their educational pursuits. Third, in the upper grade levels the female curve is consistently above the male curve. This demonstrates that fewer males make it to the secondary education levels – especially in the later waves. Finally, in each wave, the male curve is relatively lower with a wider peak than the female wave – an indication more variance in the educational attainment of the male cohort.

Overall, these differences highlight that males and females do not have the same experience in their educational progression. A larger proportion of males repeat grades at the primary level, which leads to a higher level of variance in the male cohort - a phenomenon that has been acknowledged by the Department of Education (Department of Education 2007, 16). Conversely, as the waves progress the female cohort moves through the educational levels in a clustered group and a larger proportion reach the secondary grade levels. In summary, these findings support the Department of Education's report that more males remain in the primary grade levels and a higher proportion of females transition to and through, the secondary level.

The next metric of educational progression that will be considered is the proportion of participants that are not enrolled in an educational institution. Figure 18 depicts the proportions of male and females who are not enrolled by age and shows they follow the same general pattern. The percentage of not enrolled participants drops dramatically from age five to seven when the compulsory Basic Education band begins. The un-enrolled percentage drops virtually to zero and remains there until age 15, which is the last age of compulsory Basic Education. After age 15, the percentage of not-enrolled observations increases dramatically. Overall, after age 5 a consistently higher percentage of males are not enrolled, which demonstrates that females have a higher rate of enrolment during their school-going years.

Figure 18: Percentage of Participants Not Enrolled in school by Gender and Age (CAPS)



The final indicator of educational progression is to examine the proportion of participants who were inappropriately aged for their enrolled grade. Given the primary and secondary GPI values, the expectation is that a larger proportion of males will be inappropriately aged for their enrolled grade and there the gender disparity will be wider in the primary grades. An important caveat is that this data was collected in the third wave and the sample is smaller (3523) than the original (4752). Also, as the youngest observations are 17 years-old in the third wave, to use the entire wave's sample this metric will be limited from ages five to seventeen. Finally, the appropriate ages for each grade are set by the Department of Education, which defines ages five to seven as the normal age range for Grade 1 entrance. This age band was kept throughout the grades to define the appropriate ages for enrolment.

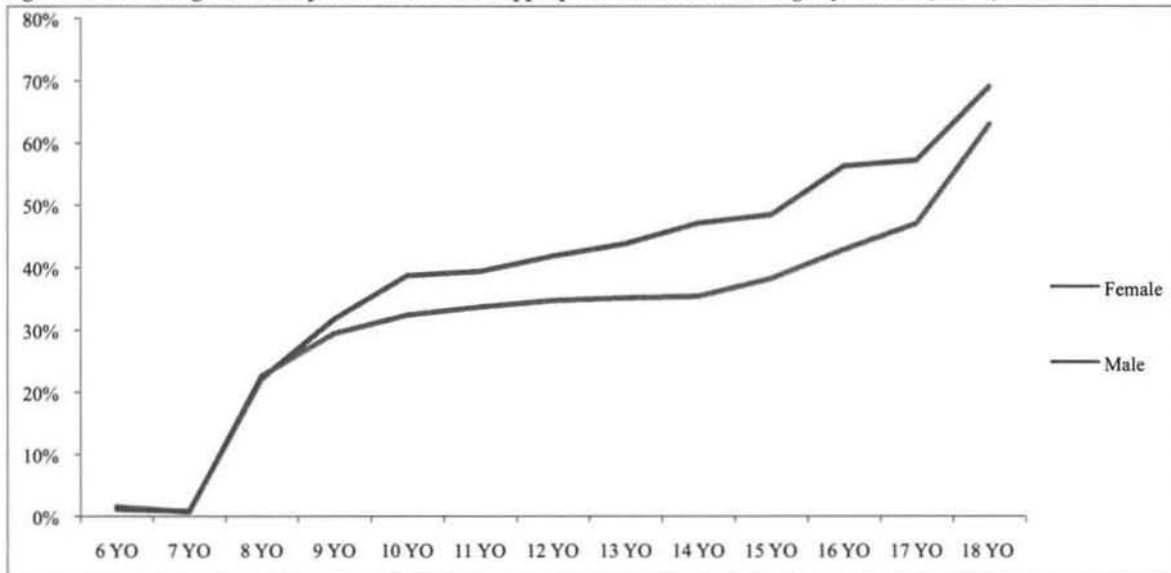
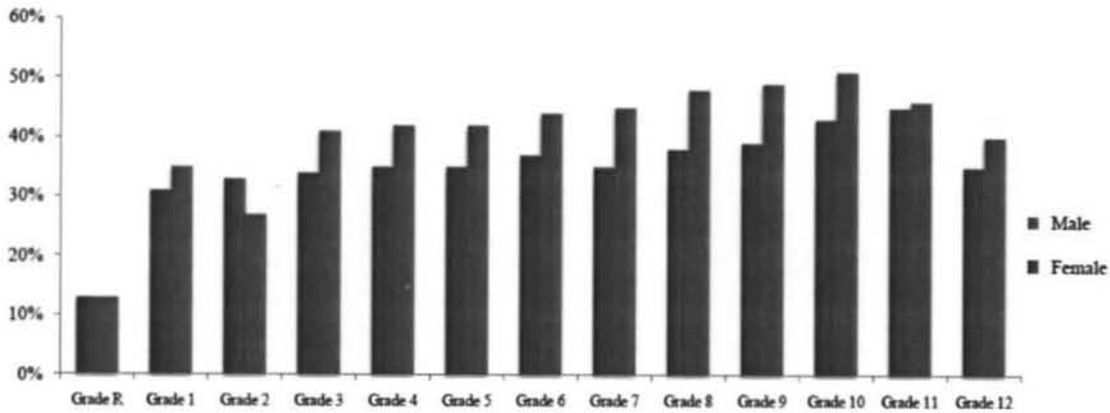
Figure 19: Percentage of Participants Enrolled in Inappropriate Grade for their Age by Gender (CAPS)

Figure 19 shows the percentage of participants who are enrolled in an inappropriate grade for their age by their age and gender. As can be seen, the rate is the same for males and females until 8 years old. After this age, the proportion of males increases faster than the rate of females. The widest disparities occur at 14 years old (males 47% and females 35%) and 16 years old (males 56% and females 43%). The male rate increases steadily as the participants age while the female rate stays relatively stable from age 9 till 14. The rates of both genders substantially increase after 14 years old. Therefore, the overall conclusion is that a larger percentage of males are enrolled in an inappropriate grade for their age and the gender gap is the widest directly before and after the end of compulsory education.

Figure 20 provides a comparison between the male and female percentages of participants who are an inappropriate age for their enrolled grade. The general trend is for the rate of inappropriately aged participants to increase as the grade progress. The male peak occurs at grade 11 and the female peak occurs at grade 12. There is a consistently larger proportion of males inappropriately aged for their grade - with the exception of grade 2. Overall, this

demonstrates that learners are enrolled in a grade inappropriate for their age almost immediately. When examining the participants by age, at 9 years old one-third are not in the correct grade for their age. Proportionally by grade, in grade 1 one-third of the learners are outside of the appropriate age band. In the low primary grades, some of this may be attributed to late enrolment but the steady increase over time indicates a high rate of failures and repeats – particularly for males.

Figure 20: Percentage of Participants Inappropriately Aged for Enrolled Grade by Gender (CAPS)



In summary, this examination of educational progression in the CAPS reveals that males and females have different educational experiences. Males overall have a lower level of educational attainment, are less likely to transition to secondary, are more likely to not be enrolled, and are more likely to be inappropriately aged for their grade. Therefore, it can be concluded that females are more successful in their progression through the secondary level.

3.3 Matric Pass Rates

In South Africa, secondary school culminates with a Matriculation exam that is offered across a variety of subjects. As previously mentioned, it has been found that the subject choice

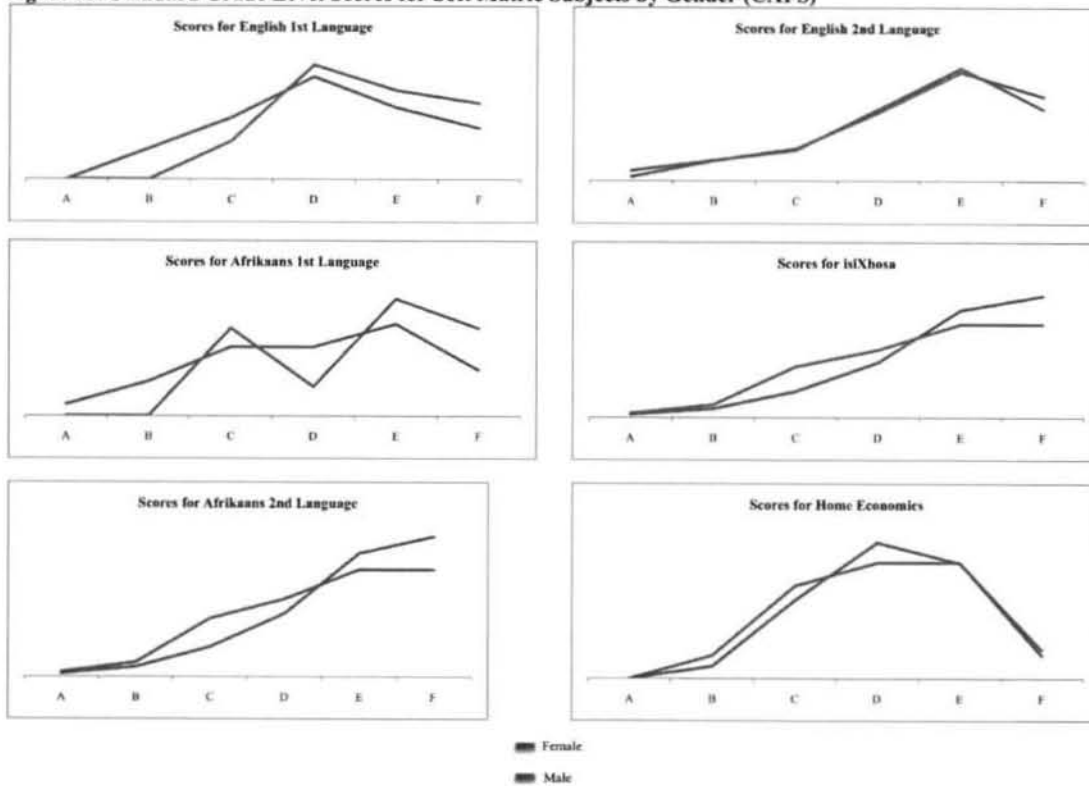
and performance tends to be patterned along gender lines (Marks 2008, 90). The overarching trend is for girls to participate and perform better in ‘soft’ subjects (languages, home economics, secretarial courses) while boys participate and perform better in ‘hard’ subjects (mathematics, physics, economics). However, as we have seen, regional cross-country generalizations can mask exceptions at the national level. In this context, probing further into this gendered subject performance is particularly relevant as more girls are participating in and completing secondary school. The objective for this metric is to investigate whether there are gendered differences in performance for the ‘soft’ and ‘hard’ Matric subject areas.

Table 2: Exams (by level) in Soft and Hard Subject areas for men and women who are aged 14 to 16 in wave 1 (CAPS)

	Soft Subjects				Hard Subjects			
	Males		Females		Males		Females	
Higher Grade	1435	87.50%	2110	83.43%	325	29.49%	406	28.37%
Standard Grade	205	12.50%	419	16.57%	777	70.51%	1025	71.63%

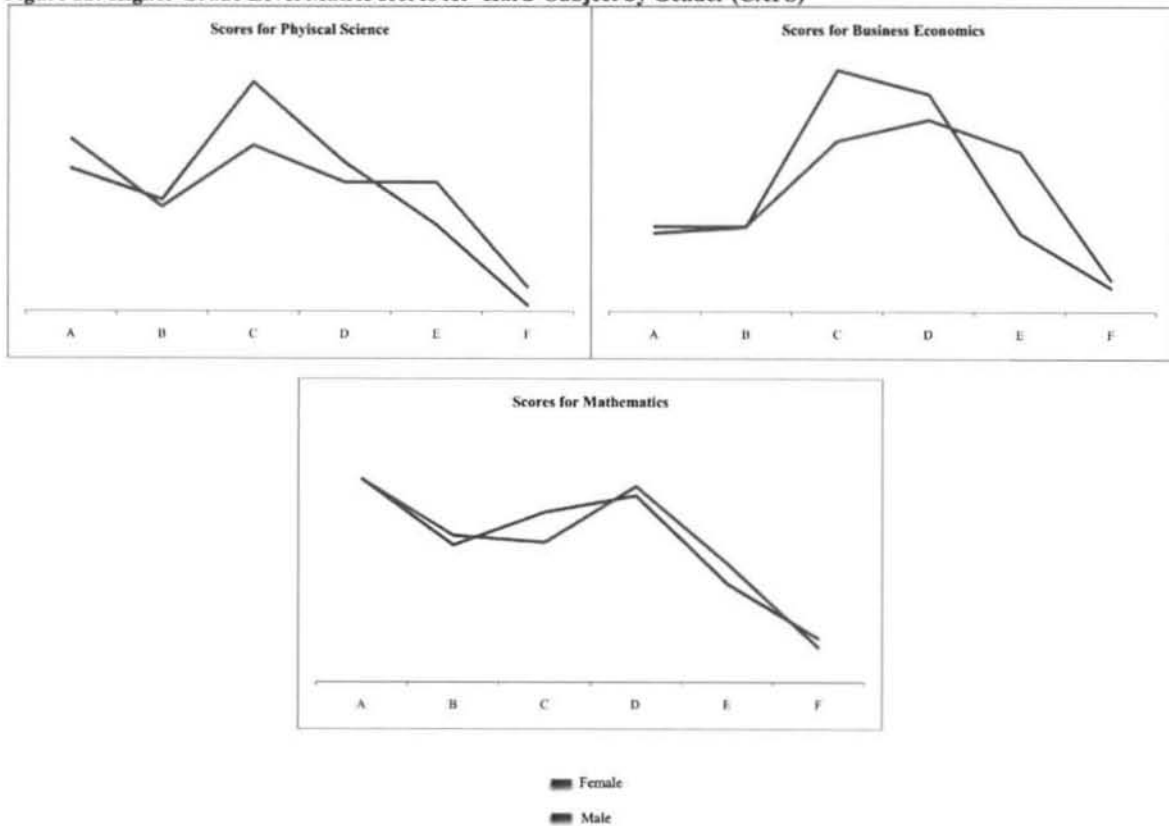
Table 2 illustrates that at both the higher and standard levels, more females write exams in ‘soft’ and ‘hard’ subject areas. As more females enroll at the secondary level it is logical they would have a larger absolute number of exams. However, in both subject areas a larger proportion of males write exams at the higher level. This gap means that even though more females write exams, proportionally more males do so at the higher level. However, given the literature review, it is counter-intuitive that the higher level gap is smaller in the hard subject area.

Figure 21: Standard Grade Level Scores for Soft Matric Subjects by Gender (CAPS)



The distributions for male and female scores at the higher-grade level in the 'soft' subject follow a standard normal curve, with the peak at the C or D mark. There is very little difference in performance, making it clear that that higher level 'soft' Matric subject performance is not gendered. At the standard-grade 'soft' Matric subjects, there is slightly more variation in the score distribution. Figure 21 shows that females perform slightly better in first language English and Afrikaans exams but there is not a significant difference in performance. The other subjects display virtually no gender disparity. Therefore at both grade levels, performance in the 'soft' subject areas is not gendered.

Figure 22: Higher Grade Level Matric scores for 'Hard' Subject by Gender (CAPS)



Male and female performance for the higher-grade level in the hard subject areas is displayed in figure 22. The graphs illustrate that there is generally a consistent shape to male and female performance. The proportion is relatively high in the A to B mark range, peaks at the C to D range and then quickly declines over the E to F range. Males and females follow this general trend with similar performance in mathematics and females performing slightly better in business economics. In the physical science subject area, the male distribution is relatively wide and flat while the female distribution is highly concentrated, particularly in the A and C marks. However, when the scores are scaled from 1-6 (1 being an A and 6 being an F) the average female score was 1.14 while the average male score was 1.18, demonstrating that while there is very little difference in their physical science subject performance, females did performed slightly better. Therefore, overall in the higher-level 'hard' Matric subjects, it can be concluded that females

perform better but that the difference is not statistically significant. Thus, this investigation has shown that that subject choice and performance in Matric exams is not gendered.

In summary, this examination investigation has revealed that there is only a gender bias in educational attainment. Other measures of educational performance show that there is not a gendered effect in South Africa. The female advantage in GPI values and enrolment ultimately is translated into higher female educational attainment. However, these higher rates of participation are not translated into better performance in literacy, numeracy or Matric scores. Therefore, the next step is to consider whether the gender inequality factors discussed in Chapter 1 are present in the CAPS sample and if they are, to explore their relationship with educational outcomes.

Chapter 4: Are the 'Usual' Gender Inequalities Present in South Africa?

Diverse measures of educational outcomes show that there is not a gender bias in South Africa, in contrast to most of the rest of Africa. Why are the factors, which hinder the educational success of girls elsewhere in Africa not having this effect in South Africa? This chapter examines whether the 'usual suspects', that disadvantage girls, are present in South Africa. The following chapters examines why, to the extent that any of these 'usual suspects' are present in South Africa, they do not seem to have the effect of disadvantaging women in terms of their educational success.

As discussed in Chapter 1, there is a broad range of factors that can discriminate against the educational opportunities and success of women. Despite this wide range, this paper will focus on a narrow set of factors that are most frequently associated with and produce gendered differences. Other factors which can have a substantial effect, such as the schooling environment and the household's religious beliefs, were not considered because either such variables were not captured within the dataset or they are more attitudinal and can be less reliable in statistical analysis. The variables that will be investigated are pregnancy, the domestic time burden (chores, care-taking activities) and the level of parental human capital investment. The exploration of each factor will begin by discussing how it was measured and then will examine the distribution for gendered disparities.

Prior to discussing the particular factors it is necessary to establish the theoretical model being pursued and how it defines the parameters of the dataset. The hypothesis being pursued is women who experience unequal circumstances or treatment (in the context of the 'usual suspects') will be less successful in educational measures than those who have more equitable experiences. As a longitudinal study, CAPS allows us to probe the first wave for gender

inequalities and examine how these affect educational outcomes in the later waves. The outcomes of educational attainment and Matric exam scores were captured in each wave of the study. Therefore, for these variables, the hypothesis is that the presence of a gender inequality factor in the first wave will have a negative impact on the educational outcomes in the study's successive waves.

However, the educational outcomes of literacy and numeracy skills were assessed in the first wave. For these educational outcomes, it is assumed that the domestic time burden and parental human capital investment, reported in the first wave of the study, is representative of the levels prior to the study. However, as will be seen, the 'pregnant' sample from the first wave is too small to accurately investigate for gendered differences and the 'pregnancy' variable must encompass waves one through three. Therefore, this makes it impossible to consider 'pregnancy' within the context of literacy and numeracy scores, which were recorded in wave one. Thus the examination of 'pregnancy' will be confined to the outcomes of educational attainment and Matric exam scores.

Additionally, the sample for this paper was limited to those participants who were between the ages of 14 and 16 in the first wave of the study. The age range was narrowed so that the investigation could concentrate on those of school-going age. When the age restriction is applied, the sample decreases to a total of 1591 (742 men or 47% and 849 women or 53%). There is an equal gender split for those 14 years old, but there are slightly more 15 year old (53%) and 16 year old (56%) women. Now that the parameters of the model and data have been detailed it is possible to investigate the CAPS for the presence of gender inequality across the 'usual suspects'.

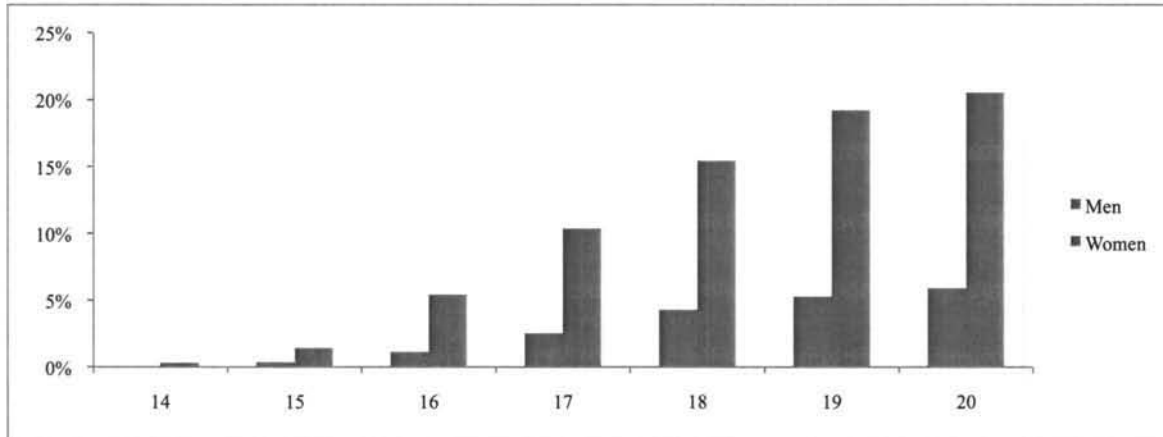
4.1 Pregnancy

In the first wave of the CAPS, only 23 participants (4 men and 19 women) report they were or had been 'pregnant'¹⁷. This is less than one percent of the male sample and is 2.25% of the female sample. As this sample size doesn't allow for an accurate comparison, the factor of pregnancy must be extended beyond the first wave. The frequency of pregnancy is next addressed in wave three, by which point 142 participants (11% of the total sample) reported they were or had become 'pregnant'. The proportion of men remains small at only 24 observations, or 3.97% of the male sample, while 118 women, or 16.8% of the female sample, responded affirmatively. This means that 83% of the 'pregnant' group is female. A bivariate logit regression of pregnancy by the study's third wave and gender reveals that women are 4.9 times more likely to become 'pregnant' than men. Therefore, within the total 'pregnant' group, women are driving the trends and patterns.

As we are examining school-going age observations, it is essential to consider the age at which the participants became 'pregnant'. Figure 23 illustrates the cumulative rate of 'pregnancy' by age and displays major gender differences. It should be noted that figure 23 is not limited to participants aged 14-16 in wave 1, but rather reflects those who are 20 years-old or less in wave 3. This age was chosen to limit the sample to the end of the school-going age range and provides a longer-term view of the frequency of 'pregnancy' during this critical age period. As can be seen, there are substantial gender differences in the rate of 'pregnancy'. By the age of 20 years-old, almost 20% of women are 'pregnant' while comparatively almost 5% of men are 'pregnant'. While men could be underreporting their rate of 'pregnancy' this vast disparity depicts that far more women become 'pregnant' in the school-going ages than men.

¹⁷ While 'pregnant' obviously is typically exclusive to females, going forward it will refer to females who either are pregnant or have been pregnant and males who have made someone pregnant.

Figure 23: Cumulative frequency of 'Pregnant' by Age for Men and Women 20 years old or less in wave 3 (CAPS waves 1-3)



However, within the 'pregnant' cohort, the largest increase in 'pregnancy' rates for both men and women occurs at ages 17 and 18. For females, there is a 5-point percentage increase in the cumulative rate of 'pregnancy' from at age 17 and 18. Comparatively, there is a 1.38-point and 1.76-point increase at age 17 and 18, respectively, for men. However, for both genders these increases correspond to the school-going age period. Comparing the increases for men and women demonstrates that the increases for women are much higher and that substantially more women become 'pregnant' during this age range.

Overall, the findings from the CAPS regarding pregnancy in school-going age observations support the findings from other studies. Numerous studies confirm that the frequency of 'pregnancy' begins to pick up at 15 and "peaks at 30.2% among 19 year olds." (Panday *et al.* 2009, 35). In the CAPS, the frequency was found to be lower but this may be because the study focuses on an urban sample. National figures are comprised of both urban and rural rates and this may contribute to a higher national rate. Therefore, overall it can be confidently concluded that in the school-going ages, significantly more women become

‘pregnant’. The following chapter will test the logical assumption that women’s higher rate will have a negative impact on their educational success.

4.2 Time Burden

In the first wave of the study, participants were asked questions about their weekly time use and activities¹⁸. Out of these questions, three activities (time spent caring for children, time spent caring for adults, time spent on household chores) can be classified as ‘domestic time burden’. A variable of the total weekly domestic time burden¹⁹ was constructed by combing the time spend on each activity into a cumulative score.

Table 3, below, lists the mean number of hours per week spent on each activity and the mean cumulative total. As can be seen, both genders spent the largest amount of time on ‘housework’ and the smallest amount of time ‘caring for adults’. However, within each domestic activity, women spend more time than men. The largest absolute gender difference occurs within the ‘housework’ activity, where women are responsible for 2.31 more hours per week. However, women spend 2.83 times what men spend ‘caring for children’, making it the largest proportional gender difference. Thus, ‘housework’ and ‘caring for children’ are primarily responsible for the large gender difference in the cumulative mean scores.

Table 3: Hours spent per week on domestic activities by gender (CAPS wave 1)

	Caring for Children		Housework		Caring for Adults		Cumulative	
	Men	Women	Men	Women	Men	Women	Men	Women
Mean Hours/week	0.89	2.52	4.16	6.47	0.189	0.37	6.77	10.46

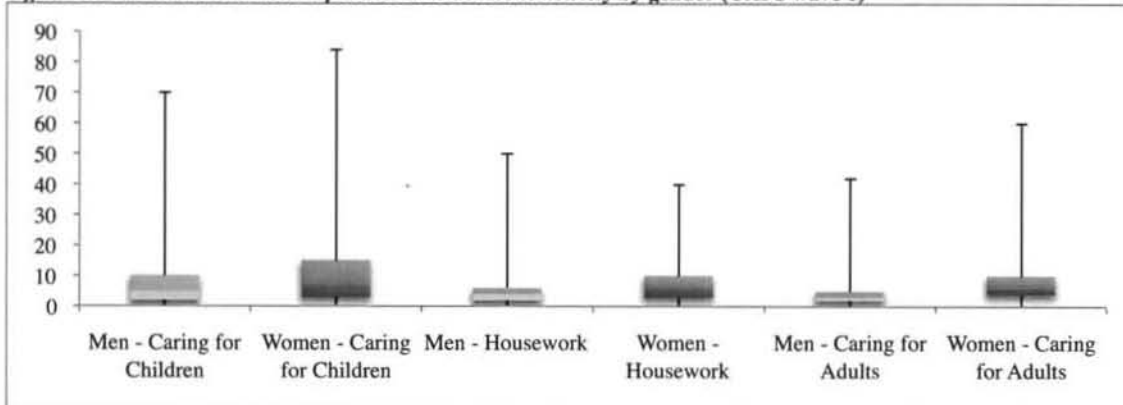
¹⁸ It should be noted that the CAPS is not a ‘time-use’ study. Therefore, the responses should be considered as indicative, rather than precise, measurements.

¹⁹ This the time spent on each activity is self-reported and not precise, there are observations which are true outliers. To compensate for the self-reporting, the total cumulative time burden was capped at 84 hours per week, allowing for seven twelve hour days.

Overall, the time burden scores are heavily concentrated at the low end of the score range. Almost 90% of the total sample has a cumulative time burden of 20 hours per week or less. However, of the remaining 10% who have a weekly time burden of more than 20 hours per week 75% are women. The gender disparity in the top 10% indicates that while a relatively high time burden is not common, it is even less common within the male observations.

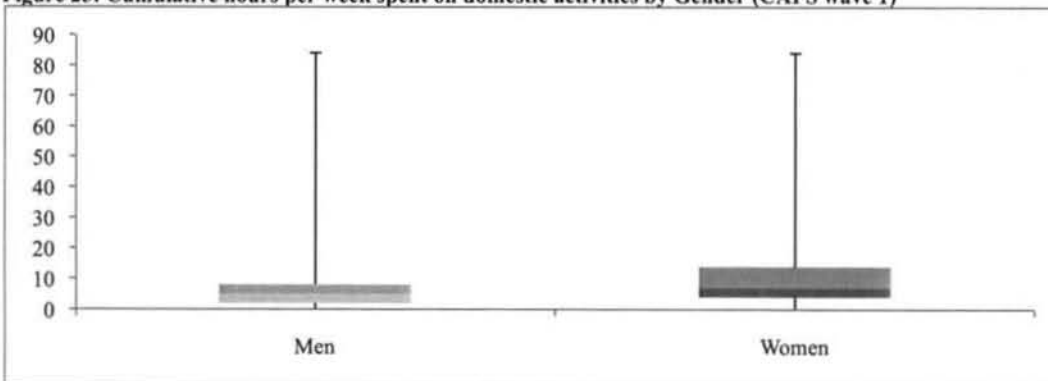
Figure 24 below, illustrates the gender differences by delineating the distribution of scores into quartiles across the individual domestic activities. The position of the first three quartiles along the y-axis underscores how heavily the sample is concentrated at the low end of the hour range. In each activity, the max score for the third quartile is at or below a maximum score of 15 hours per week or less – meaning that within each of the first three quartiles, the hour range is very small. Comparatively, the range of hours in the fourth quartile is massive and ranges up to a maximum of 84 hours (in the ‘caring for children’ activity). This variance means that the observations within the fourth quartile are widely disbursed and there is not much continuity between the observations of this quartile. However, it should be noted that the wide hour range in the fourth quartile is not the result of an outlying observation, and instead there are data points throughout the range.

Figure 24: Distribution of hours spent on each domestic activity by gender (CAPS wave 1)



Overall, figure 24 clearly demonstrates that women carry a heavier domestic time burden than men. The strongest evidence for this finding is that through the 75th percentile, women consistently are responsible for more hours in each activity. As the final variable is a cumulative score, it logically follows that women have a higher cumulative time burden. Figure 25 depicts the cumulative scores for both genders and supports the finding that women have a heavier time burden than men. Furthermore, a bivariate OLS regression of domestic time burden and gender shows that the gender difference is highly significant and ‘being female’ is associated with 0.49 more hours per week of domestic work.

Figure 25: Cumulative hours per week spent on domestic activities by Gender (CAPS wave 1)



In summary, the finding that women have a heavier time burden supports other findings from around the world. Specifically across Africa it has been documented that “women bear the brunt of domestic tasks” (Blackden 2003, 6). Furthermore, without an accurate picture of the

disparities it is impossible to drive policy and regulation to address the resulting consequences (Levine 2008). In the CAPS it was found that the largest absolute difference occurred in the time spent doing 'housework', which is echoed by Levine's finding "girls spend much more time performing housework than boys." (Levin et al 2008, 26). As it has been conclusively found that women have a heavier domestic time burden, the following chapter will focus on investigating whether this is associated with a gendered pattern of educational attainment.

4.3 Parental Human Capital Investment

In wave 1, similar to the questions about time use, participants were asked questions about the level of involvement and investment that their mothers and fathers make in their lives. To create the variable, responses to several questions (does your mother/father give you money for school', 'does your mother/father have dinner with you', 'does your mother/father have personal conversations with you', 'does your mother/father spend time alone with you' and 'does your mother/father help you with homework')²⁰ were combined to give each participant an individual cumulative score. Affirmative answers were given a value of one so that, as there were five questions for each parent, the highest possible cumulative score would be a value of 10.

As with the time burden scale, the parental human capital investment scale was divided into quartiles so that the differences in distribution are easier to compare and represent visually. Again, the male and female cohorts were treated as separate groups and were divided into quartiles within their respective cohorts. This ensures that comparisons between the two groups will reflect the true nature of any differences or similarities.

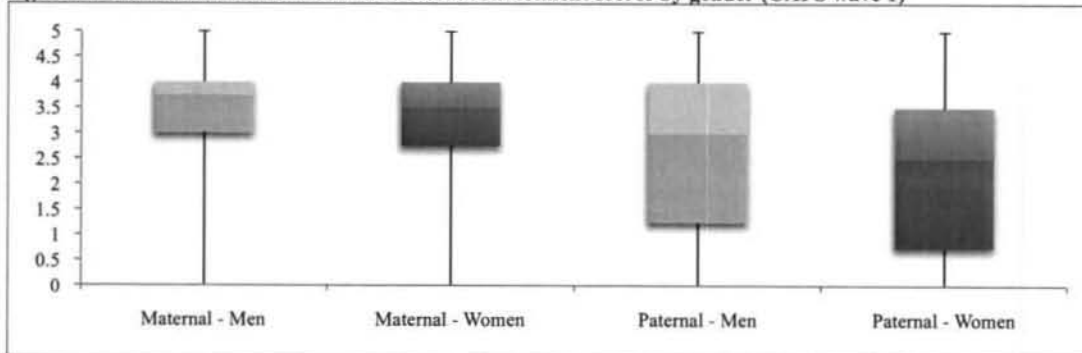
²⁰ It should be noted that these answers are self-reported and not verified by the parents nor through observation by the field worker. Therefore, as these questions deal with personal relationships, the responses are subject to emotion which could introduce an unknown bias.

Table 4: Mean cumulative scores for Maternal, Paternal and Total Parental Investment scales by gender (CAPS wave 1)

	Maternal variable		Paternal variable		Parental variable	
	Men	Women	Men	Women	Men	Women
Mean	3.29	3.15	2.36	2.14	5.66	5.3

Table 4 above lists the mean cumulative scores for the maternal, paternal and total parental investment variables. The mean scores of the paternal variable are roughly a full point lower than those of the maternal variable. This disparity implies that in the CAPS, participants reported receiving less investment and time from their fathers than their mothers. Additionally, as the mean cumulative score for women within each variable is lower than the score for men, this means that women reported lower levels of investment than men.

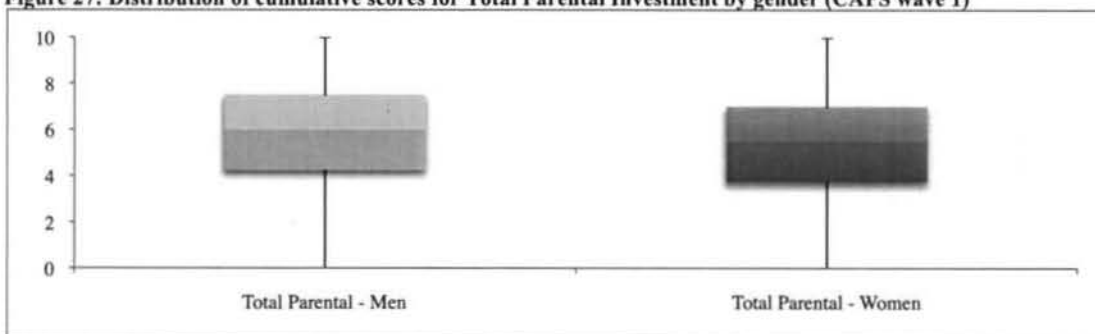
Figure 26 below illustrates the distribution of the maternal and paternal investment scores for men and women by quartile. As can be seen, the fourth quartile reaches the maximum score of 5 in each cohort. A comparison of the investment range demonstrates the middle 50% is highly concentrated in a narrow score range for maternal scores. Alternatively, the middle 50% for the paternal scores covers a much larger score range and means there is substantially more variation in the investment level of fathers.

Figure 26: Distribution of Maternal and Paternal Investment scores by gender (CAPS wave 1)

In terms of gender differences, the box plots show that there is very little gender difference across the maternal level of investment. For men, the observations in the third quartile are more concentrated but overall there are not significant differences. However, in the paternal level of investment, the 75th percentile of the women's sample is much lower along the y-axis than the male cohort. Thus, while there is not a huge difference in the mean paternal scores, this graph illustrates how women are heavily concentrated in the low range of paternal investment.

Figure 27 displays the total cumulative parental investment scores and, as can be seen, the gender differences in each quartile are small but cumulatively result in a noticeable difference. As this variable combines both parents, the graph reflects the compounded effect of lower levels of investment from both parents for the female cohort. A series of regression models demonstrated that the gender differences in all three parental investment variables were significant. In each regression model, 'being female' is associated with a lower level of investment than 'being male', with the largest negative influence occurring in the paternal variable model. Therefore, it can be concluded that parents, especially fathers, invest less in their daughters than their sons.

Figure 27: Distribution of cumulative scores for Total Parental Investment by gender (CAPS wave 1)



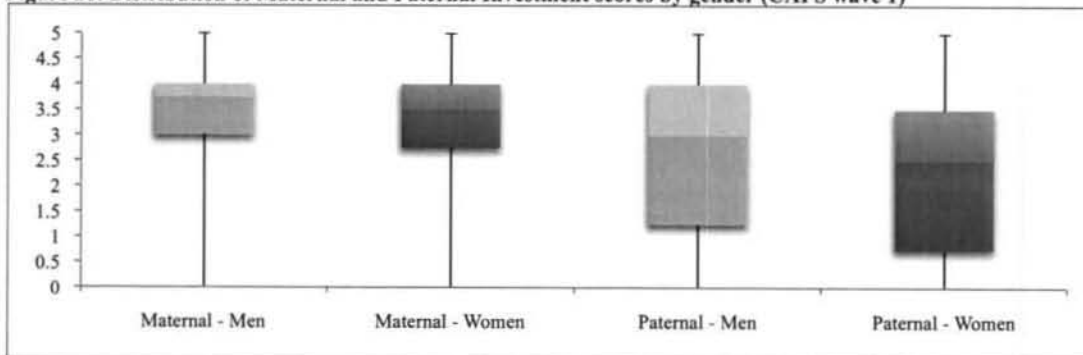
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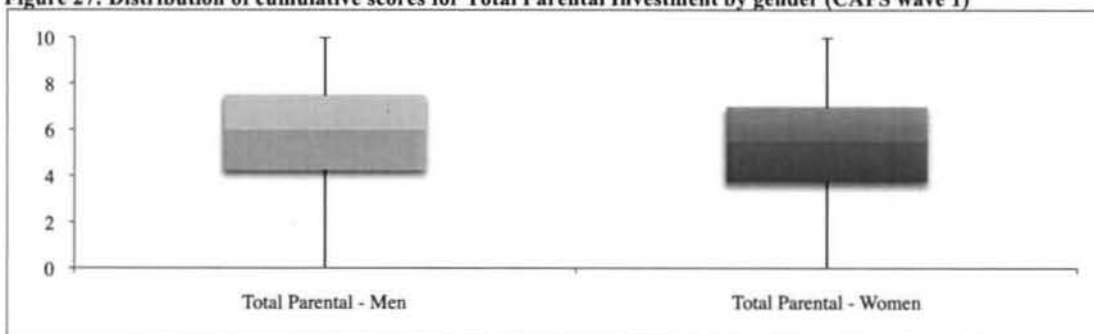
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supports numerous studies that for a variety of cultural, economic and social reasons men typically receive more human capital investment than women (Levine, 2008; Morrison, 2008; Herz and Sperling, 2004). It has been found that when this occurs it is usually because parents feel that they will 'yield' a higher return from their sons, but a cross-country study found that the return on a secondary level education is higher for women (18%) than for men (14%) (Psacharopoulos 2004, 113). Furthermore, it was found that though there are differences between population groups, the negative effect of 'being female' is constant within the groups. Therefore, it can confidently be concluded that women receive a significantly lower human capital investment from their parents than men.

Overall, this investigation of the presence of gender inequality conclusively proves that women experience a significant bias across all three factors. In each factor women are more constrained and face larger obstacles. Combined together, these findings conclusively demonstrate that the 'usual suspects' are present in the lives of women from the Cape Area. As no gender bias was found across the total population, the next step is to determine whether gender disparities emerge when segmented along the 'usual suspects'.

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5. Why don't the 'usual suspects' of unequal educational outcomes operate in South Africa?

Across the developing world, gendered educational outcomes are frequently attributed to a set of factors, which could be called the 'usual suspects'. Chapter 4 showed there is a gender bias (higher pregnancy rates, heavier domestic time burden and lower parental investment) across these factors. Their presence raises the question – are they associated with the inequitable educational outcomes seen in other countries? The objective of this chapter is to probe the relationship between the 'usual suspects' and educational attainment. The following chapter considers whether this effect is constant across other educational outcomes.

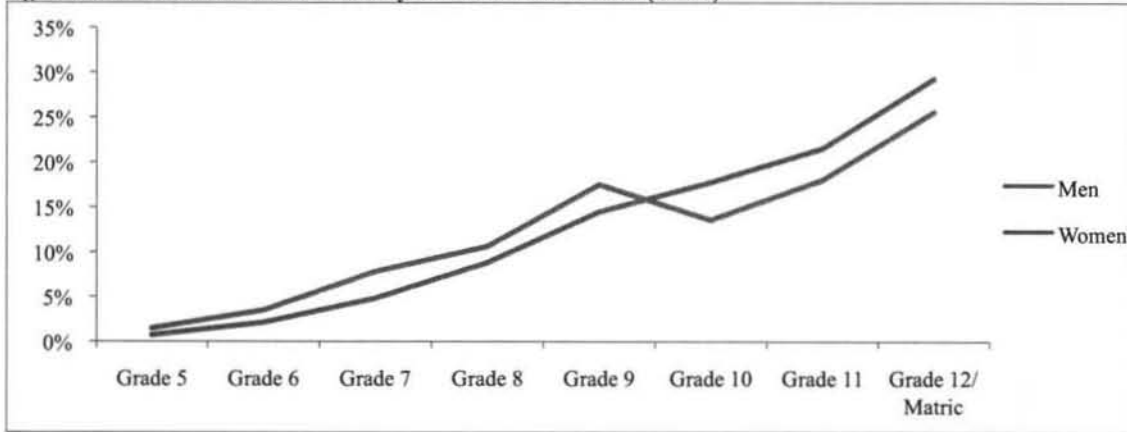
This chapter begins by investigating the characteristics of educational attainment in the sample. This moves beyond chapter 3 by limited the cohort to participants between the ages of 14 and 16 in the first wave of CAPS and capping educational attainment at 20 years old. These limitations accommodate for attrition as the study progresses and isolate the observations to a narrow school-going aged band. After the characteristics of the baseline are established, the influence of the 'usual suspects' will be considered.

5.1 The Baseline

Figure 28 illustrates the differences in the distribution of educational attainment among 20 year-old men and women. Although the two distributions are similar in shape and skewedness, there is a noticeable gap between men and women, which emerges at grade 4. The trend found in chapter 3 (fewer males transition to the secondary school level which leaves a larger proportion of inappropriately aged males at the primary level) is visible but more pronounced due to the imposed age limit. In total, over 29% of females and 25% of males

complete grade 12. It should be noted that the male peak at grade 9 is the last year of compulsory education and means that this is the educational culmination for a sizeable portion of men.

Figure 28: Educational Attainment at 20 year-old men and women (CAPS)²¹



A bivariate OLS regression was built to examine gender and grade level attainment at 20 years old. The regression reveals that the gender difference in educational attainment is highly significant (at the 1% level) and 'being female' is associated with attaining 0.46 additional grade levels. However, gender explains only 1.38% of the variation in educational attainment. This means that to comprehensively investigate the usual suspects²¹, in addition to inter-gender variation, it is necessary to consider intra-gender disparities, as this will demonstrate whether the effect is larger for men or women. In summary, the baseline illustrates that 'being female' has a highly significant positive impact on educational attainment but it isn't driving grade level achievement.

Table 5: The additional grade level attainment associated with 'being female' in the total population (CAPS)²²

	Total Sample
Additional grade level attainment associated with 'being female'	0.46***

²¹ The graph displays the educational attainment for 99.12% of the sample. As the remaining 0.88% of observations are in spread across Grade 4 they do not add substantial value to the graphic and have been excluded for visual purposes.

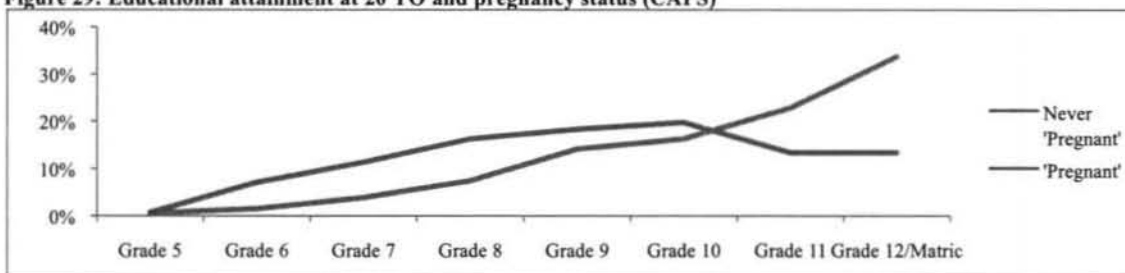
²² For all regression models, *= $p < 0.1$, **= $p < 0.5$, ***= $p < 0.01$

5.2 Pregnancy

Now that the baseline and trends of educational attainment have been discussed, it is necessary to consider the influence of the 'usual suspects'. The first to be investigated is 'pregnancy'²³ and the assumption is that it is associated with a lower level of educational attainment. Chapter 4 illustrated that there are significant gender differences in the rate and age of 'pregnancy'. The objective is to uncover whether the gender bias in 'pregnancy' is associated with a gendered pattern of educational attainment.

Figure 29 below depicts stark differences in the grade level attainment at 20 years-old of the 'pregnant' and never 'pregnant' cohort. The never 'pregnant' group is heavily skewed toward the upper grade levels, peaking at grade 12/Matric. Alternatively, the 'pregnant group' has a more normal distribution with the peak at grade 10. The gap between the two groups indicates that 'pregnancy' appears to be associated with a lower level of educational attainment. A bivariate OLS regression of the difference in grade level attainment between the two groups reveals that being 'pregnant' is highly significant and associated with attaining 1.11 fewer grade levels. This confirms the assumption that 'pregnancy' has a negative influence on educational attainment.

Figure 29: Educational attainment at 20 YO and pregnancy status (CAPS)

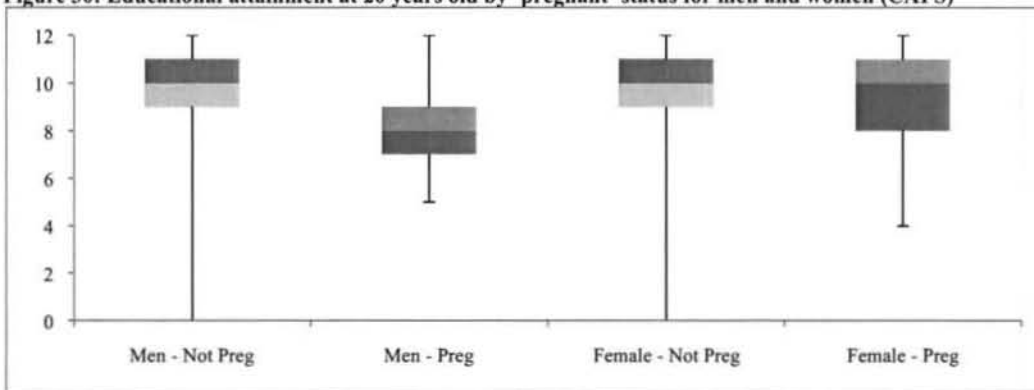


The next step is to explore whether the negative association is larger for women, traditionally the primary caregiver, or for men. Figure 30 illustrates the distribution of the grade

²³ As mentioned in Chapter 4, 'pregnant' as a term, will refer to females who are or have been pregnant and males who have made someone pregnant.

level attainment at 20 years-old by 'pregnancy' status for both genders. The distributions of never 'pregnant' cohorts are identical – a sparse first quartile and densely concentrated thereafter. The heavy concentration in the final three quartiles means the majority of the cohort reaches the secondary level and thus has a relatively high level of educational attainment.

Figure 30: Educational attainment at 20 years old by 'pregnant' status for men and women (CAPS)



For the 'pregnant' cohort, there are major gender differences in the distribution. The observations of 'pregnant' women are heavily concentrated in the top three quartiles. Though there is less variation in the first quartile and more in the second, overall it is very similar to the never 'pregnant' groups. The distribution for 'pregnant' men however, is very different. Comparatively, the second and third quartiles span a lower grade level range and there is considerably more variance in the fourth quartile. This suggests that within the 'pregnant' cohort men have a lower level of educational attainment and there is more inter-gender variation for men.

To determine whether the gap in educational attainment is larger for men or women, two OLS bivariate regression models were constructed to look at the genders independently. In both models, being 'pregnant' has a highly significant negative influence on educational attainment. For women, being 'pregnant' is associated with completing 1.25 fewer grade levels while for

men, it is associated with completing 1.43 fewer grade levels. Therefore, the negative impact on educational attainment associated with being 'pregnant' is, surprisingly, larger for men.

Furthermore, an OLS bivariate regression found that there is a significant gender difference (at the 10% level) in the educational attainment of the 'pregnant' cohort. This regression found that being 'female' in the 'pregnant' cohort is associated with completing 0.68 more grade levels. Together, these regressions show that there is a larger inter-gender disparity for men but that there is also intra-gender disparity, which favours women. Therefore, it can be concluded that 'pregnant' women have a higher level of educational attainment than men.

As females are traditionally the primary caregiver and it is much more common for women of school-going age to become 'pregnant', why do they have a higher level of educational attainment than 'pregnant' men? As attainment is heavily related to enrolment, this will be the first point of inquiry. Chapter 3 found that non-enrolment rates increase at 15 years-old and that men consistently have a higher rate. Figure 37 illustrates the rate of non-enrolment by age for both genders by their 'pregnancy' status. The distribution of the never 'pregnant' cohort adheres to the pattern found in Chapter 3. Conversely, the rates of 'pregnant' men and women are much higher than the never' pregnant cohort. This gap between the 'pregnant' status cohorts demonstrates that the 'pregnant' group clearly has a higher non-enrolment rate.

Figure 31: Non-enrolment rate by age and 'pregnant' status for men and women (CAPS waves 1-3)

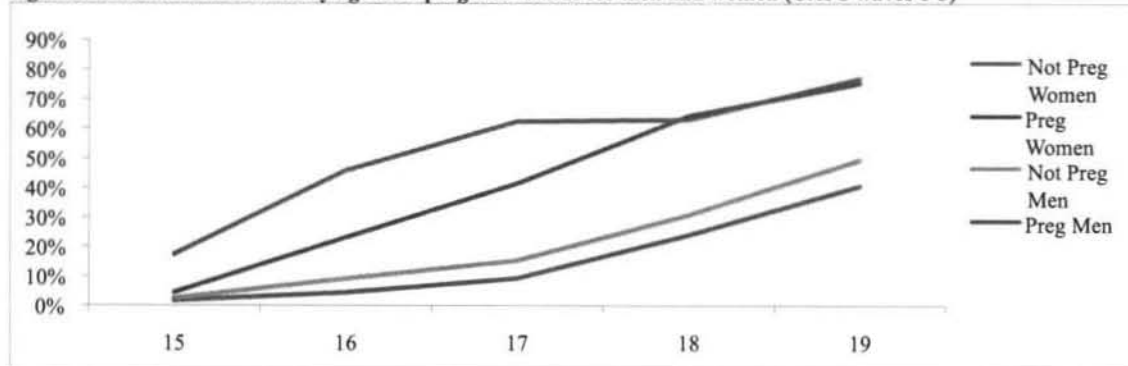


Figure 31 demonstrated that for both men and women, the peak school-going years of 'pregnancy' are at 17 and 18 years old. In this context, enrolment rates indicate that a considerable portion of 'pregnant' men and women drop out before they become 'pregnant'. Additionally, until 18 years old, the non-enrolment rate for 'pregnant' men is much higher. This means that from ages 15 to 18, a higher proportion of 'pregnant' men, than women, are not enrolled in school. Dropping out at a relatively younger age means less time is spent in the education system, which likely translates to a lower level of grade attainment. This disparity in enrolment from ages 15 to 18 between 'pregnant' men and women is likely responsible for the gap in educational attainment.

These results explain that most often 'pregnancy' does not cause a lower level of educational attainment. Rather, 'pregnant' observations are more likely to drop out of school before pregnancy, which results in a lower level of educational attainment. Furthermore, 'pregnant' males are more likely to drop out at a younger age, which results in a larger intra-gender male disparity across 'pregnant' cohorts and a significant inter-gender disparity within the 'pregnant' cohort. A 2009 report by the Human Science Research Council, on behalf of the Department of Education, on 'pregnancy' in school-going aged learners found that "Although the time of school dropout and pregnancy coincides for some girls, for most, pregnancy follows

school dropout.” (Panday *et al* 2009, 38). The data from CAPS supports this conclusion but finds that the trend is more pronounced amongst ‘pregnant’ men. In summary, although the ‘usual suspect’ of ‘pregnancy’ is associated with a lower level of educational attainment the negative association is not larger for ‘pregnant’ women.

Table 6: The additional grade levels associated with being ‘pregnant’ across demographic segments (CAPS)

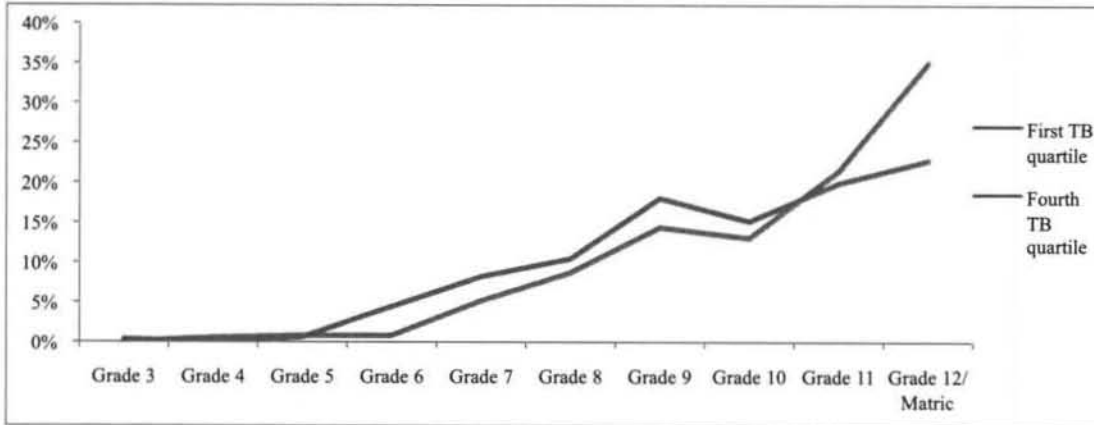
	Total Sample	Female Sample	Male Sample	‘Being female’ in the ‘pregnant’ cohort
Additional grade levels associated with being ‘pregnant’	-1.11***	-1.25***	-1.43***	0.68*

5.3 Domestic Time Burden

The next ‘usual suspect’ to consider is the domestic time burden of participants. As previously discussed, the domestic time burden is significantly higher for women. The assumption is that a heavier time burden will be associated with a lower level of educational attainment and, as women have a heavier burden, the negative influence will be larger for women.

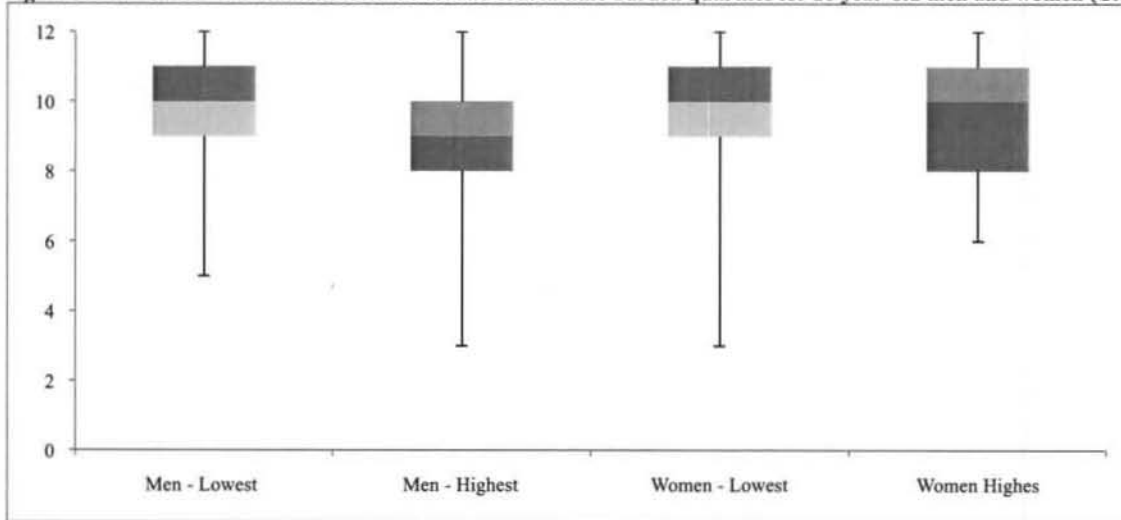
Figure 32 below, depicts the educational attainment at 20 years-old for observations in the first (lightest) and the fourth (heaviest) time burden quartiles. As the graphic demonstrates the achievement gap begins almost immediately so ultimately, the first quartile achieves a higher level of educational attainment. The disparity is most pronounced at the secondary level and is widest at Grade 12. A bivariate OLS regression model was created to examine the difference in educational attainment between the two time burden categories. The regression reveals that the difference is highly significant and that being in the fourth time burden quartile is associated with completing 0.54 fewer grade levels. Together, the graph and regression results confirm that a heavy time burden is associated with a lower level of grade level attainment.

Figure 32: Educational attainment at 20 years old for the first (lowest) and fourth (highest) domestic time burden quartiles (CAPS)



The next step is to investigate whether there is a gendered pattern of educational attainment across the time burden categories. Figure 33 displays the distribution of educational attainment by gender for the first and fourth quartiles. The distributions of men and women in the first (lowest) time burden category are identical. This confirms that there is not a disparity between men and women with a minimal time burden. In the fourth (heaviest) time burden quartile, there are small gender differences. The differences in variance indicate that the middle 50% of men complete grades 9-10 while the middle 50% of women complete grades 9-11. Overall, the wider spread in the upper grades and the smaller spread in the lower grades, means that women in the highest time burden category have a higher level of educational attainment.

Figure 33: Educational attainment for the first and fourth time burden quartiles for 20 year-old men and women (CAPS)



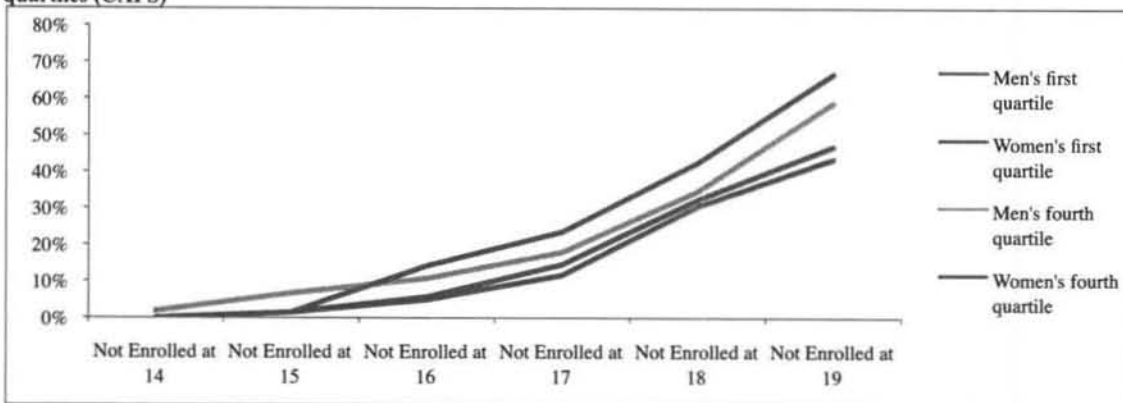
To determine whether the disparity in educational attainment between the two time burden categories is larger for men or women, two regression models were built. In both models, the difference in educational attainment between the time burden categories is highly significant. For women being in the fourth quartile is associated with completing 0.46 less grade levels while for men it is associated with completing 0.65 less grade levels. This means that the intra-gender educational attainment disparity between the two time burden categories is larger for men than women.

Furthermore, a bivariate OLS regression of the difference in educational attainment of men and women in the highest time burden quartile shows that there is a significant gender difference (at 10%). For observations in the highest time burden quartile, being female is associated with completing 0.37 more grade levels. Therefore, despite the fact that women have a larger absolute time burden, the negative influence of a heavy time burden on educational attainment is larger for men both within and across genders. This means although a heavy time

burden is associated with a lower level of educational attainment, it is not disproportionately larger for women.

As this finding is counter-intuitive, as with 'pregnancy' it is necessary to consider the pattern of enrolment. Figure 34 shows the non-enrolment rate by age for the first (lowest) and fourth (highest) time burden quartiles. A probit regression confirms that the disparity in enrolment at 19 years-old between the first and fourth time burden quartiles (for the total sample) is highly significant. Being in the fourth time burden quartile decreases the likelihood of being enrolled at 19, by 18.8%. First quartile men and women demonstrate a pattern very similar that found in Chapter 3. Comparatively, the fourth time burden has a higher rate of non-enrolment and after 15 years old, women have a higher rate of non-enrolment. As 15 years-old is the final year to compulsory education, this suggests that following the end of compulsory education women in the fourth quartile are more likely to drop out.

Figure 34: Non-enrolment rate by age for Men and women in the first (lowest) and fourth (highest) domestic time burden quartiles (CAPS)



The non-enrolment rates for men and women imply that a heavy time burden is associated with a gender disparity in enrolment. However a probit bivariate regression reveals that there is not a significant gender difference in the enrolment rates at 19 years-old for the highest time burden category. While there is a visible gap in the sample, the lack of statistical significance means that this could be to do chance. Therefore, while a heavy time burden

negatively influences enrolment, it does not appear to have gendered effect and does not explain the difference in educational attainment within and across genders for a heavy time burden.

The intra-gender disparity in educational attainment of the highest time burden category is mainly concentrated in the first and second quartiles (the bottom 50%). Figure 38 shows that the bottom 50% of men are spread across grades 3-9 while the bottom 50% of women are spread across grades 6-10. This dense concentration of the female sample means that they achieve a relatively higher level of educational attainment. As there is no disparity in enrolment, this appears to be driving the inter and intra-gender disparity in educational attainment. Furthermore, as the baseline showed, men have more difficulty transitioning to the secondary level and it appears that the negative influence of a heavy time burden exerts itself most by accentuating this pattern in the male sample.

Overall, this evidence suggests that a heavy time burden has a negative impact on the grade level attainment of both genders. Despite the fact that women have a heavier absolute burden, a heavy time burden is associated with a larger inter and intra gender disparity for men. As the disparity in educational attainment appears to be driven by the difference at the lower grade levels, this implies that a heavy time burden is associated with a lower rate of transition to the secondary level for men. Therefore, while a heavy time burden negatively impacts educational attainment it does not have a larger negative impact on women.

Table 7: Additional grade levels associated with being in the fourth (heaviest) domestic time burden quartile (CAPS)

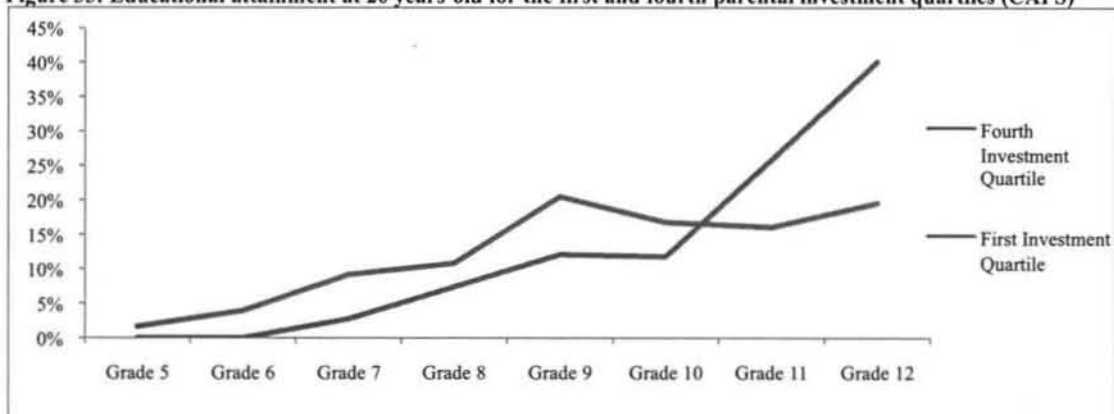
	Total Sample	Female Sample	Male Sample	'Being female' in the highest time burden category
Additional grade levels associated with the heaviest time burden category	- 0.54***	-0.46***	-0.65***	0.37*

5.4. Parental Human Capital Investment

The final 'usual suspect' to consider in relation to educational attainment is the investment that parents make in their children. Chapter 4 conclusively showed that daughters receive less investment than sons. Overall, fathers invest less than mothers but for women, paternal investment is significantly lower. The assumption being pursued is that a low level of parental investment will have a negative influence on educational attainment and, as women receive less parental investment, the negative impact will be larger for women.

Figure 35 shows the educational attainment at 20 years old for the fourth (highest) and first (lowest) parental investment quartiles. The consistent gap between the two cohorts implies that there is a substantial achievement disparity between the two groups. The heavily skewed first quartile demonstrates a higher level of grade level attainment. An OLS bivariate regression model was constructed to examine the difference in grade level attainment between the two quartiles. The regression reveals that the difference is highly significant and being in the first quartile is associated with completing 1.19 fewer grade levels. This clearly verifies that receiving a low level of parental investment is associated with a lower level of educational achievement.

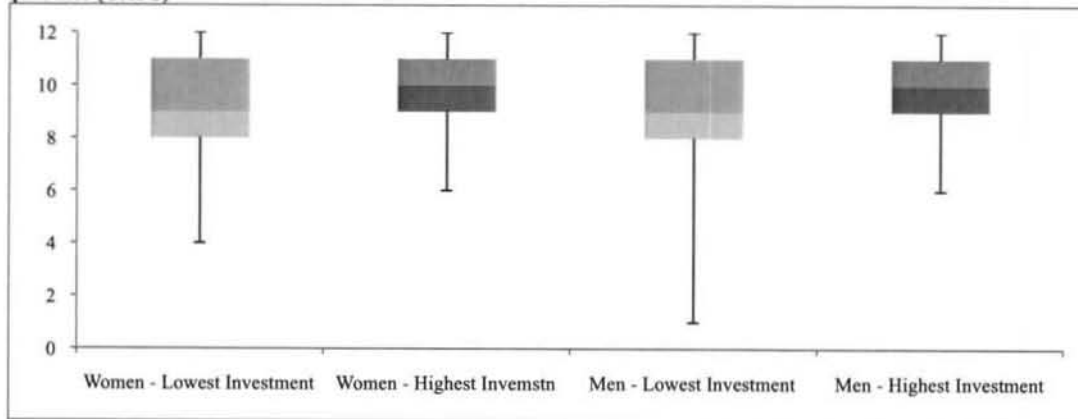
Figure 35: Educational attainment at 20 years-old for the first and fourth parental investment quartiles (CAPS)



Given that a low parental investment negatively impacts educational attainment, it is necessary to investigate whether there is also a gender bias. Figure 36 below depicts the grade

level attainment of the first (lowest) and fourth (highest) parental investment quartiles for both genders. The graph shows that within the investment quartiles, the distribution of educational attainment is fairly identical across genders. The only noteworthy difference is between the first quartiles of the lowest investment category, in which the female observations are concentrated and grade 5 is the lowest grade level attained. The male observations are sparser and the lowest grade level attained is grade 1. As the top 75% of men and women in the lowest investment category have identical distributions, it appears that the negative influence of a low parental investment is most pronounced in the bottom 25% of the male sample.

Figure 36: Educational attainment at 20 years old for men and women in the first and fourth parental investment quartiles (CAPS)

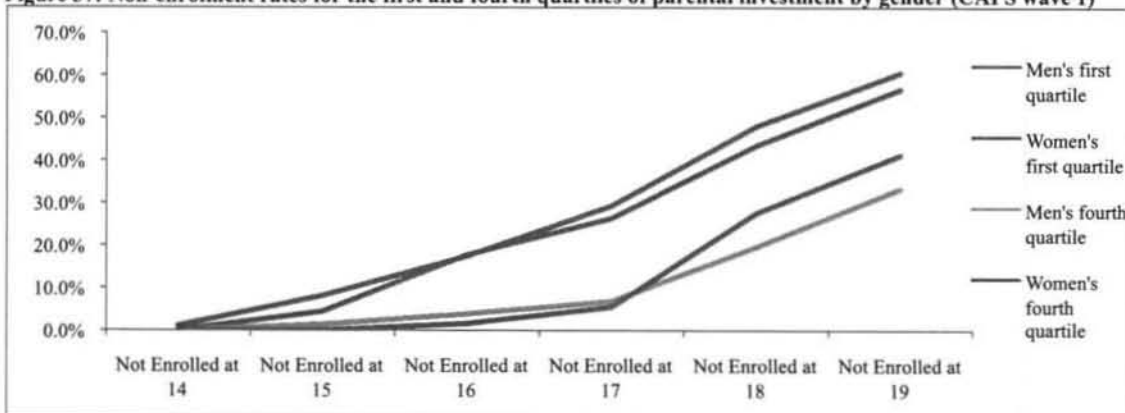


To determine whether the negative influence of a low level of parental investment on educational attainment is larger for men or women, two regression models were constructed. In both regressions, the difference between the highest and lowest investment quartiles is highly significant and being in the first (lowest) investment quartile has a negative impact on educational attainment. For women, being in the first quartile is associated with completing 1.09 less grade levels while for men it is associated with completing 1.32 less grade levels. Therefore, the negative intra-gender influence of a low level of parental investment on educational attainment is larger for men.

Furthermore, a bivariate OLS regression of the difference in educational attainment for men and women who are in the lowest parental investment category was constructed. This regression reveals that being female is significant (at 5%) and is associated with completing 0.5 more grade levels. This means that a low level of parental investment is associated with a significant inter-gender disparity. Therefore, it can be concluded that a low level of parental investment has a larger negative influence on the educational attainment of men.

Once again, as the gender disparity found is counter-intuitive, it is necessary to consider the enrolment rates of men and women in the highest and lowest investment categories. Figure 37 shows the non-enrolment rates by age for the first (lowest) and fourth (highest) quartiles of parental investment. Immediately, there are substantial differences as the first quartile has a consistently higher non-enrolment rate. Within the first quartile, men have a higher non-enrolment rate than women but the disparity does not appear to be substantial.

Figure 37: Non-enrolment rates for the first and fourth quartiles of parental investment by gender (CAPS wave 1)



A probit regression of the difference in enrolment rates at 19 between parental investment quartiles reveals that the difference is highly significant. Being in the first investment quartile will decrease the likelihood of being enrolled at 19 years old by 43%. This massive difference proves that the level of parental investment is clearly associated with enrolment rates. Though there is a gender difference in the rates of the first quartile, the gender disparity was not found to

be significant. Therefore, while the level of investment has a clear impact on enrolment levels, a low level is not associated with a gendered difference.

This investigation found that a low level of parental investment negatively influences the educational attainment of both men and women. However, both intra and inter-gender examinations showed that the negative influence is larger for men. Exploring the distributions of men and women in the lowest parental investment quartile shows that the disparity is clustered at the bottom 25% of the male sample. This suggests that a low level of parental investment has the influence of accentuating the trend found in the total male sample, and impedes the transition of the bottom 25% to the secondary level. Therefore, it can be concluded that although a low level of parental investment negatively influences educational attainment it does not have a larger negative influence on women.

Table 8: CAPS Regression coefficients for Educational Attainment and Parental Human Capital Investment

Educational Attainment	Parental Human Capital Investment			Coloured Parental Human Capital Investment		
	Lowest	Moderate	Highest	Lowest	Moderate	Highest
	0.69**	0.88***	0.31**	0.89*	1.12***	0.45**

In summary, this exploration of the ‘usual suspects’ and gender disparities in educational attainment found surprising results. Across all three factors, it was found that the presence of the ‘usual suspects’ is associated with a larger negative influence for males. Females consistently have smaller intra-gender disparities and all inter-gender comparisons found that being female was associated with a higher level of educational attainment. While the gender disparity found in the context of ‘pregnancy’ was explained by enrolment rates, the other two factors showed that their presence appeared to impede the transition of males through the secondary level. In both cases, the effect appeared to be concentrated to the bottom 25% of the male sample. Therefore, rather than having a disproportionately negative influence on female educational attainment, the

presence of the 'usual suspects' appears to most negatively influence low achieving males. Thus, it can be concluded that although the 'usual suspects' are present and negatively influence educational attainment women are not disproportionately affected.

Chapter 6: The ‘usual suspects’ and other Educational outcomes

The previous chapter concluded that although there are significant gender differences in educational attainment when the ‘usual suspects’ are considered, the disparity favours women. This disparity is caused by enrolment differences and by the ‘usual suspects’ impeding the male transition to the secondary level. The objective of this chapter is to explore whether this counter-intuitive trend is present in other measures of educational attainment. The subsequent indicators will be literacy, numeracy and cumulative Matric exam scores – all from the CAPS. With no gender difference in performance found in Chapter 3, the hypothesis is that when the ‘usual suspects’ are considered there will be a gendered pattern of achievement. Again, the sample is limited to participants 14 to 16 years-old in the first wave, so the focus remains on school-going ages.

6.1 Literacy Scores

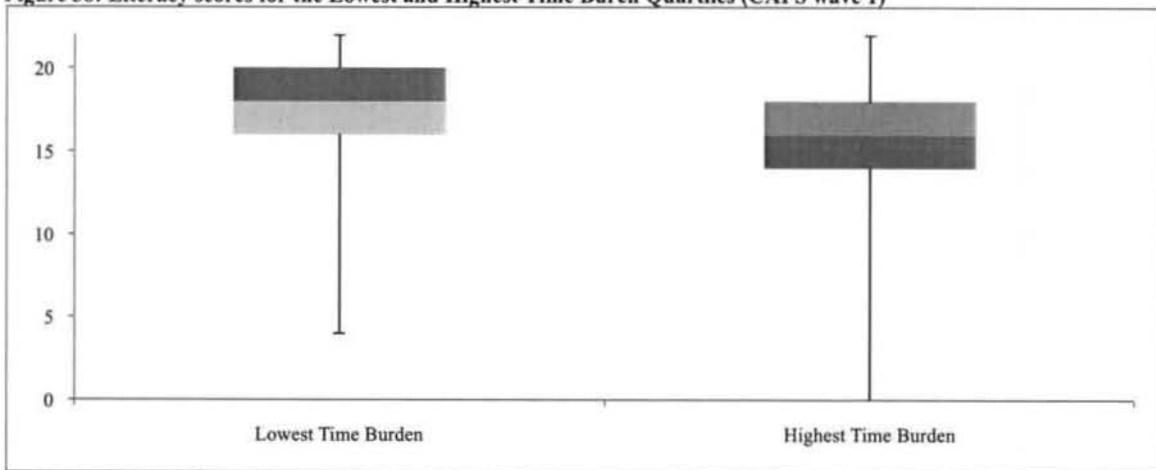
On average, women answered 16.85 questions correctly while men answer 16.73 and, across the total population, no gender bias was found. This section will probe whether the presence of the ‘usual suspects’ reveals hidden gender disparities. As the literacy scores were captured in the first wave and the ‘pregnancy’ variable extends through the third, it is not possible to explore this relationship.

Domestic Time Burden

The logic of this section is, that a heavy time burden will be associated with a negative influence on literacy scores and, as women have a heavier relative time burden, the negative influence will be larger for women. Figure 38 depicts the literacy scores for the first (lowest) and

fourth (highest) time burden quartiles and shows a dramatic difference between the two groups. The observations in the lowest time burden category are heavily concentrated at the upper end of the score range, with the lowest score of '4'. Comparatively, the middle 50% of the highest time burden category is positioned lower on the score scale and it's lowest score is '0'. From these differences, it is evident that the lowest time burden category performed better on the literacy assessment.

Figure 38: Literacy scores for the Lowest and Highest Time Buren Quartiles (CAPS wave 1)



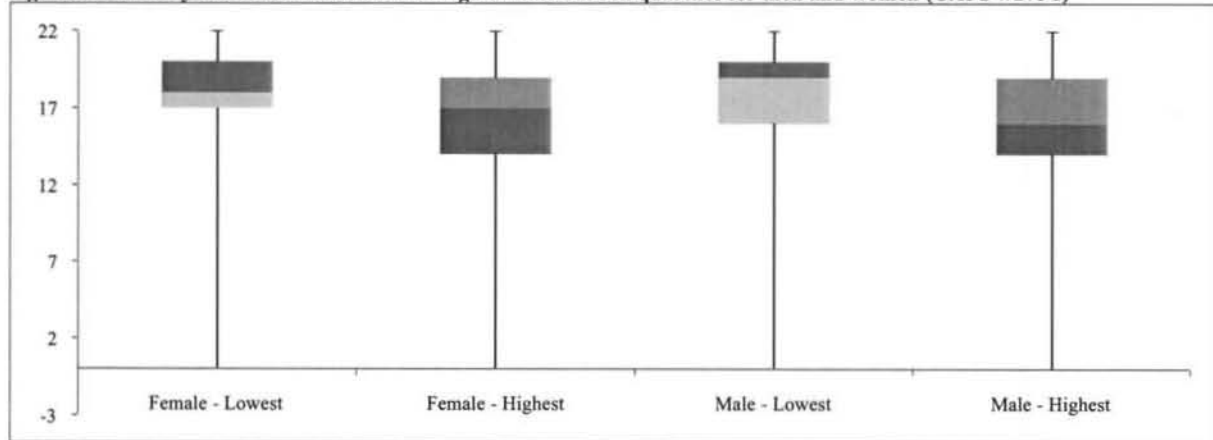
To confirm this difference, a bivariate OLS regression model was created to examine the difference between the first and the fourth time burden quartiles. The regression reveals that being in the fourth quartile is highly significant and associated with a literacy score that is 1.6 fewer points lower. Thus, it can be concluded that a heavy time burden is associated with lower literacy performance.

The next step is to determine whether the difference between the first and fourth time burden categories results in a larger literacy score disparity for men or women. The distribution of literacy scores for the lowest and highest time burden quartiles is displayed in Figure 39. Men and women in the lowest time burden category are concentrated in the upper score range. Conversely, for both men and women in the highest time burden category, the middle 50% is

positioned relatively lower on the score range and there is much wider variance across the middle band.

As for intra-gender disparity, as men in the lowest time burden are densely concentrated at the top of the middle 50% while women are concentrated at the bottom of the middle 50%. This slight difference means that, in the lowest time burden category, men have higher literacy scores than women. Therefore, as there is virtually no gender variation in the highest time burden category, the male intra-gender gap in literacy scores is larger.

Figure 39: Literacy scores for the lowest and highest time burden quartiles for men and women (CAPS wave 1)



To confirm the intra-gender disparity in literacy scores, two bivariate OLS regression models were created. In both models, being in the highest time burden category is highly significant and associated with a negative effect. For women, it is associated with a literacy score that is 1.2 points lower while for males it is associated with a literacy score that is 2 points lower. This substantiates the finding that the intra-gender disparity in literacy scores across time burden categories is larger for men.

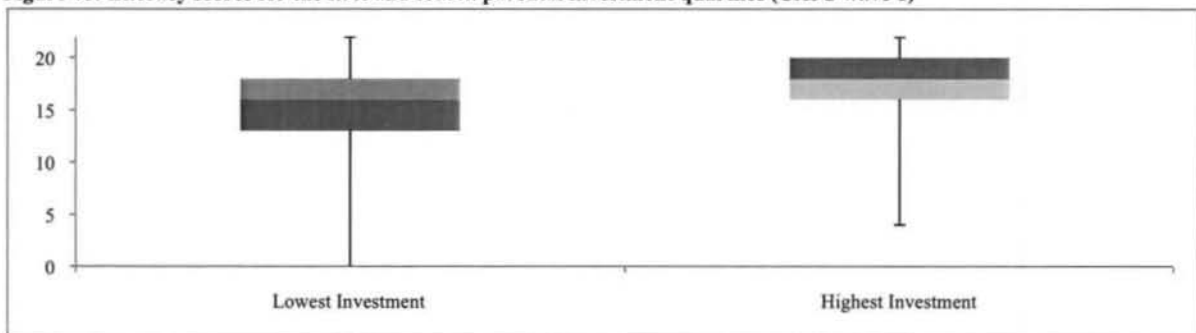
Furthermore, a bivariate OLS regression was created to examine the inter-gender disparity in literacy scores of the highest time burden quartile. As the regression found no significant differences, the only significant differences in performance occur in an inter-gender

context. Therefore, it can be concluded that while a heavy time burden negatively impacts literacy performance, the negative impact is not larger for women.

Parental Human Capital Investment

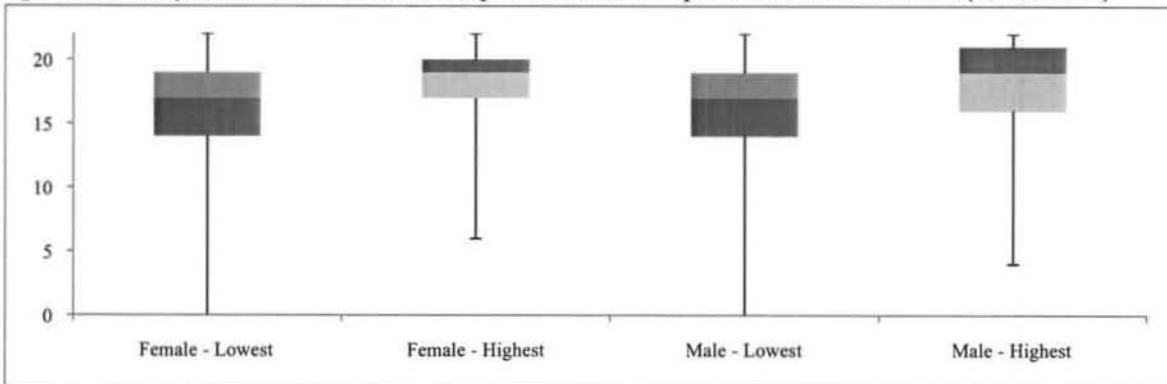
The assumption for the parental investment variable is that a low level of parental investment will be negatively associated with literacy scores and, as women receive a lower investment, the negative association will be larger for women. The literacy scores for the first (lowest) and fourth (highest) quartiles of parental investment are displayed in figure 40 and it can be seen that the highest investment category has dramatically higher literacy scores. Not only is the sample skewed toward the upper score range, with a lowest score of '4' but there is less variance. Comparatively, the distribution of the lowest investment category is more normal, but has a relatively wider variance. An OLS bivariate regression of the two group's literacy scores confirms the insights from the graph. The results show that the difference between the two investment categories is highly significant and being in the lowest investment category is associated with a literacy score that is 2.3 points lower. This clearly demonstrates that receiving a low level of parental investment has a negative influence on literacy performance.

Figure 40: Literacy scores for the first and fourth parental investment quartiles (CAPS wave 1)



Next, it is necessary to consider whether the intra-gender gap between the two investment categories is larger for men or women. The distribution of literacy scores for the first (lowest) and fourth (highest) parental investment quartiles is displayed in figure 41. The major differences between the investment quartiles are the skewness of distribution for the highest investment categories and the wide variance in the first quartile of the low categories. Men in the highest investment category are more skewed to the upper scores than women. As the male and female distributions in the lowest investment category are identical, this suggests that there is a larger intra-gender disparity for males.

Figure 41: Literacy scores for the first and fourth parental investment quartiles for men and women (CAPS wave 1)



To confirm the intra-gender disparity across investment quartiles, two OLS bivariate regressions were constructed. In both models being in the lowest investment category is highly significant and has a negative impact on literacy scores. For women, it is associated with a literacy score that is 2.2 points lower while for men it is associated with a literacy score that is 2.56 points lower. This verifies that the disparity in literacy scores between the lowest and highest parental investment levels is larger for men. Furthermore, a bivariate OLS regression was created to examine the inter-gender disparity in literacy scores of the lowest investment category. As the regression found no significant gender differences, the only significant differences in performance occur in an intra-gender context. Therefore, it can be concluded that while a low

level of parental investment negatively influences literacy performance, the negative impact is not larger for women.

Overall, this investigation found that the presence of the ‘usual suspects’ is associated with a larger intra-gender disparity for men. This finding is counterintuitive as women have a heavier time burden and receive a lower level of parental investment. Moreover, as literacy scores were captured when participants were aged 14 to 16 when non-enrolment rates are very low, this means that non-enrolment does not account for these results. While the intra-gender disparity is larger for men, no inter-gender disparity was found either with or without the presence of the ‘usual suspects’. This means that while male literacy appears to be more sensitive to the influence of the ‘usual suspects’ it is not large enough to result in significant inter-gender differences. Therefore, while the ‘usual suspects’ are associated with lower literacy performance, they do not produce gendered results.

Table 9: Additional literacy score points associated with the presence of the usual suspects (CAPS wave 1)

Additional literacy score points associated with presence of usual suspect	Domestic Time Burden			Parental Human Capital Investment		
	Total Sample	Female Sample	Male Sample	Total Sample	Female Sample	Male Sample
	-1.6**	-1.2***	-2**	-2.3***	-2.2***	-2.56***

6.2 Numeracy Scores

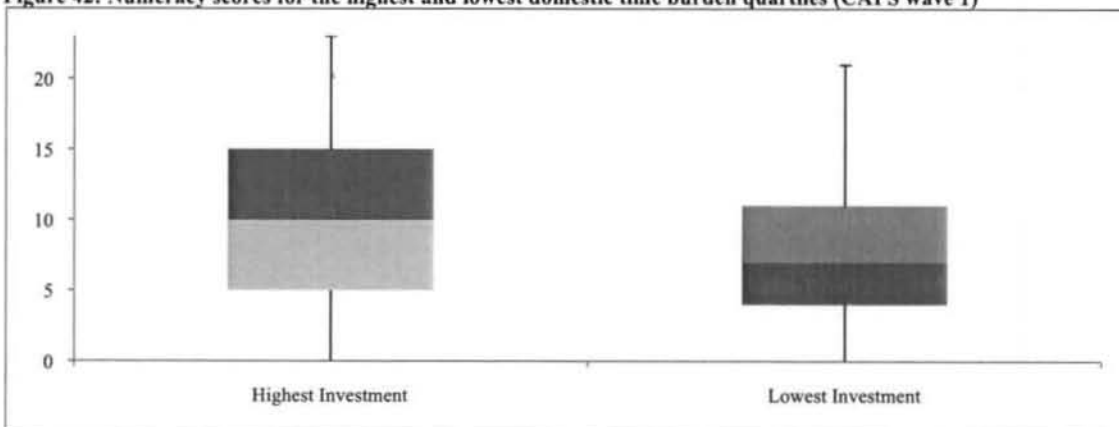
As previously mentioned, the numeracy scores are much lower than the literacy scores with a male mean score of 9.19 and a female mean score of 8.76. Though there is a difference in the mean scores, there is little variation in their distributions and no significant gender difference was found. This section will examine numeracy scores to determine whether the presence of the

'usual suspects' reveals a hidden gender disparity. Again, as the pregnancy variable extends to wave 3, it will not be considered in the context of numeracy performance.

Domestic Time Burden

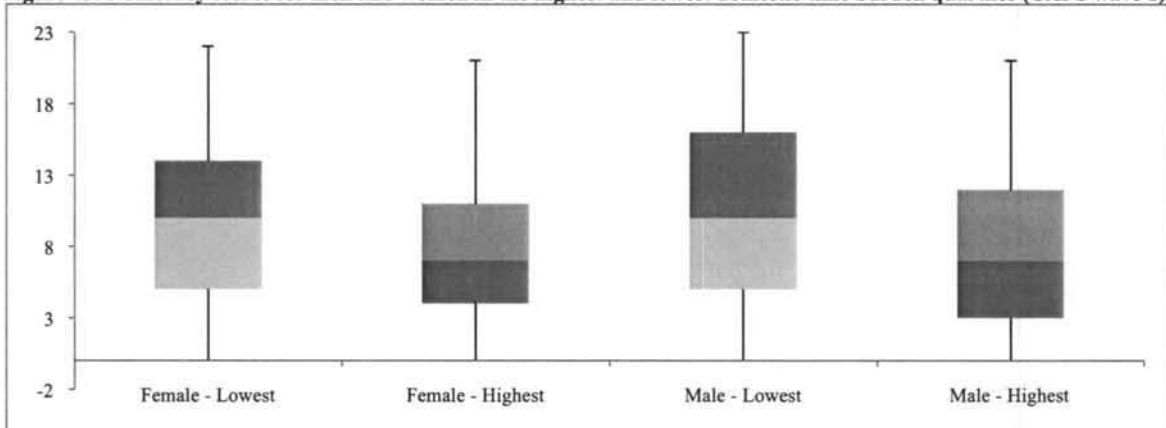
The logic pursued in this section is that a heavy time burden will negatively impact numeracy scores and, as females have a heavier burden, the negative influence will be larger for women. The numeracy scores for the highest and lowest domestic time burden quartiles are illustrated in figure 48 and both categories have a wide variance across the score range. However, the lowest time burden category is more skewed toward the low end of the score range. Additionally, the highest time burden category has a maximum score of '23' while the lowest category had a maximum score of '21'. An OLS bivariate regression of the numeracy scores in the highest and lowest time burden categories confirms that the difference is highly significant. The results show that being in the highest time burden quartile is associated with a numeracy score that is 2.83 points lower. All of the evidence conclusively shows that being in the highest time burden quartile has a negative impact on numeracy scores.

Figure 42: Numeracy scores for the highest and lowest domestic time burden quartiles (CAPS wave 1)



The next step is to explore whether the gap in numeracy scores between the time burden categories is larger for men or women. Figure 42 depicts the distribution of numeracy scores for the lowest and highest domestic time burden categories. In both time burden categories, female scores are more densely concentrated and the middle 50% covers a relatively lower score range. However, as the inter and intra-gender differences are very slight, it is difficult to determine whether the gap larger is larger for men or women.

Figure 43: Numeracy scores for men and women in the highest and lowest domestic time burden quartiles (CAPS wave 1)



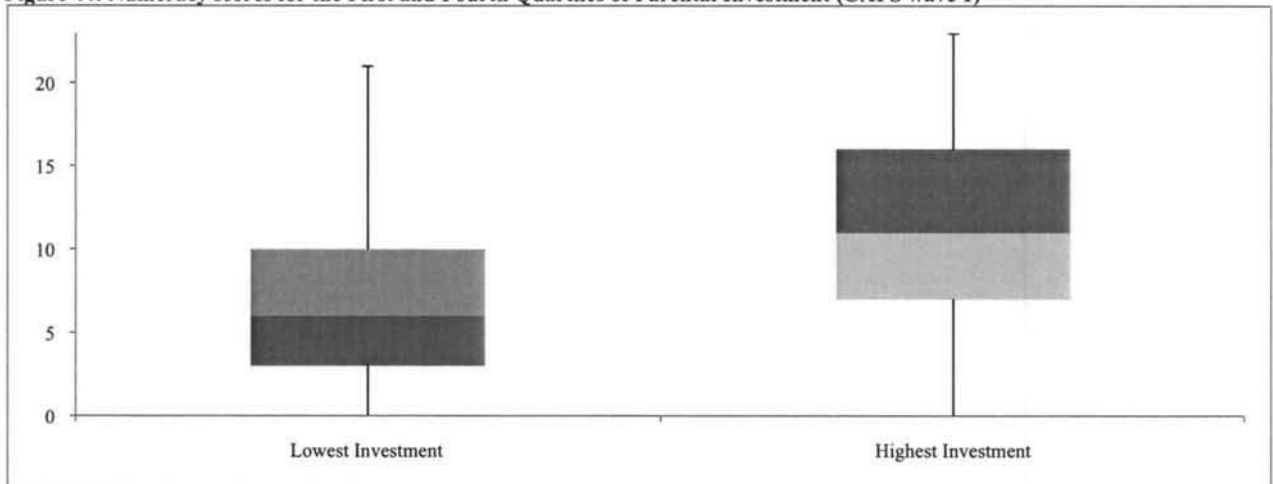
To probe the intra-gender disparities between the time burden categories, two OLS bivariate regression models were constructed. For both genders, being in the highest time burden quartile is highly significant and negatively impacts numeracy scores. It is associated with a numeracy score that is 2.45 points lower for men and a literacy score that is 2.44 points lower for men. This indicates that there is no difference in the size of the disparity across time burden categories for men or women. Additionally, a bivariate OLS regression was created to examine whether there is an inter-gender disparity in the numeracy scores of the highest time burden category. As the regression found no significant gender differences, it can be concluded that although a heavy time burden negative influences numeracy scores it does not produce any intra

or inter-gender disparity. Thus, a heavy time burden is not associated with a gender bias in numeracy performance.

Parental Human Capital Investment

The assumption of this section is that a low parental investment will have a negative impact on numeracy scores and, as females receive a relatively lower investment, the negative impact will be larger for women. Figure 44 illustrates the numeracy scores of the lowest and highest parental investment quintiles. The graph clearly illustrates that the lowest investment quartile has considerably lower scores. A bivariate OLS regression confirms that the difference between the investment quartiles is highly significant and that receiving a low investment is associated with a literacy score that is 4.65 points lower. This massive disparity is powerful evidence that receiving a low level of parental investment negatively impacts numeracy skills.

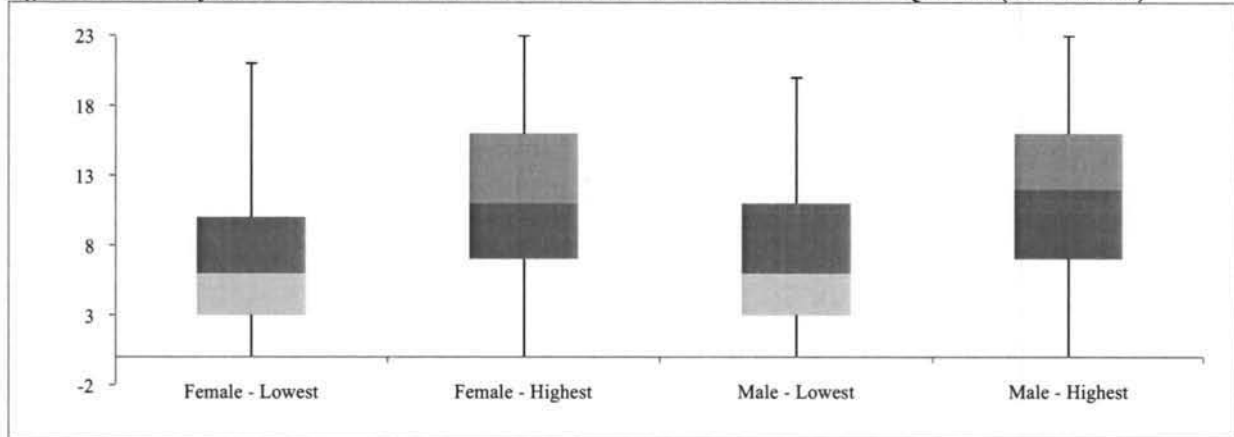
Figure 44: Numeracy scores for the First and Fourth Quartiles of Parental Investment (CAPS wave 1)



Next it is necessary to consider whether the disparity across investment categories is larger for men or women. Figure 45 shows the distribution of numeracy scores for the first and fourth parental investment quartiles for men and women. For the highest investment level, the male and female distributions are identical and there are minimal differences between men and

women in the lowest category. The lack of variation makes it difficult to determine whether the inter or intra-gender gap favours men or women.

Figure 45: Numeracy scores for men and women in the First and Fourth Parental Investment Quartiles (CAPS wave 1)



To answer this, two bivariate OLS regression models were constructed to examine the difference in numeracy scores between the lowest and highest parental investment levels. In both models, the difference is highly significant and for females, receiving a low level of parental investment is associated with a numeracy score that is 4.39 points lower while for males it is associated with a numeracy score that is 4.89 points lower. These intra-gender differences across investment categories indicate that a low level of parental investment is associated with a larger negative influence for men. To examine the inter-gender differences in numeracy scores, a bivariate OLS regression was constructed for the lowest parental investment level. As no significant gender disparity was found, it can be concluded that there are only significant disparities occur across investment categories.

Overall, this investigation found that the presence of the 'usual suspects' negatively influences the numeracy scores of men and women. In both 'usual suspects' a series of regressions demonstrated that the only significant disparities are intra-gender and occur within genders, across the investment categories. While there is no difference in the size of the disparity

for a heavy time burden, the disparity is larger for men in the context of a low level of parental investment. However, the lack of an inter-gender disparity means that the magnitude of the negative influence is not large enough to result in a skewed gendered performance. Therefore, the overall conclusion is that although the 'usual suspects' negatively influence numeracy performance, it does not produce gender-biased results.

6.3 Matric Scores

The final educational outcome to be assessed is the sample's Matric scores. While there are 1591 participants aged 14 to 16 in wave one, only 293 (124 men and 169 women) provided detailed information on their Matric exams. To construct the variable, letter grades were assigned a value based on the exam level and a cumulative score of each participant's exam results is compiled. The lowest value in the score range is '1', while the highest is '27'.

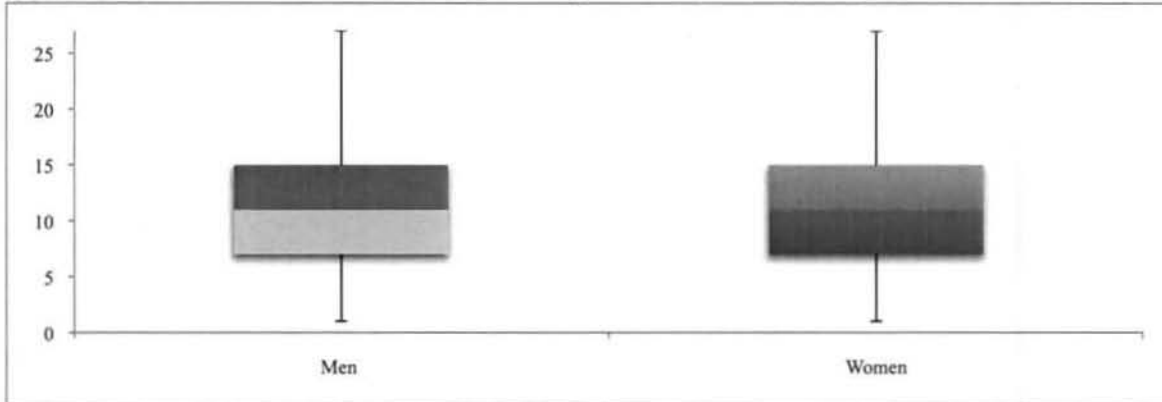
Table 10: University of Cape Town Admissions Department Matric Point System

Symbol	Higher Level	Standard Level
A	8	6
B	7	5
C	6	4
D	5	3
E	4	2
F	3	1

When disaggregated by gender, there is very little variation in the raw aggregate scores. Females have a slightly higher mean score (2.45) than males (2.13) but the difference is not significant. As figure 46 shows, when the distributions are divided into quartiles, there is virtually no inter-gender disparity. A bivariate OLS regression confirms that there is no significant gender difference in cumulative Matric scores, which means that Matric performance, across the total sample, is not gendered. Now that this has been established, it is necessary to determine if considering the 'usual suspects' uncovers a gender bias. It should be noted that of

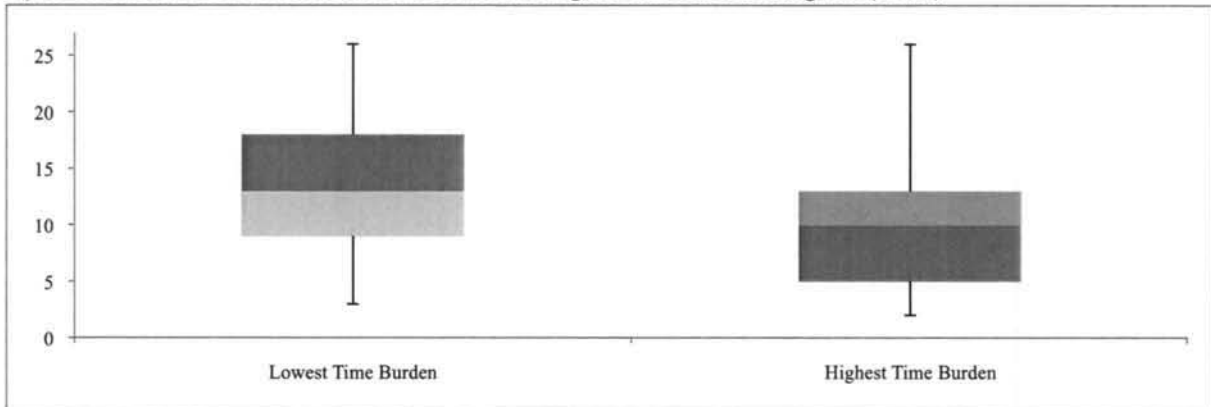
the 'pregnant' cohort, only 16 participants provided Matric exam details. As this sample size is far too small to examine, the investigation will focus only on domestic time burden and parental investment.

Figure 46: Cumulative Matric Score for Men and Women aged 14 to 16 in wave 1 (CAPS)

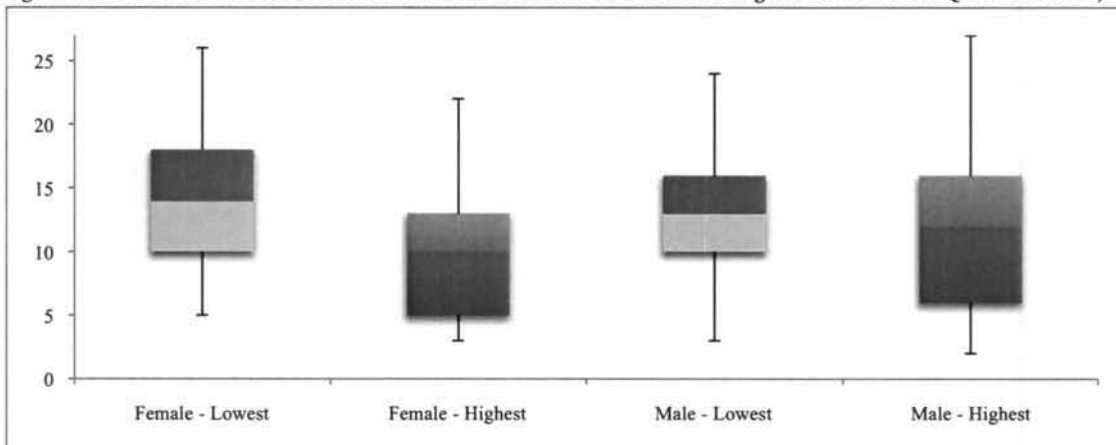


Domestic Time Burden

The assumed impact of a heavy time burden is that it will have a negative impact on Matric scores and, as women have a heavier time burden, it will be larger for women. The cumulative Matric scores for the lowest and highest time burden quartiles are pictured in figure 47. The graph shows that the observations for the highest time burden category are densely concentrated in the bottom half of the score range and overall, are relatively lower. The difference in distribution between the two time burden categories suggests that a heavy time burden is associated with a lower cumulative Matric score. A bivariate OLS regression of the difference in Matric scores between the time burden categories was constructed. The regression reveals that the difference between the time burden categories is highly significant and that being in the highest category is associated a cumulative score that is 1.45 points. This establishes that having a heavy time burden negatively influences Matric exam scores.

Figure 47: Cumulative Matric scores for the Lowest and Highest Time Burden Categories (CAPS)

Next, it is necessary to compare the magnitude of the intra-gender disparities in Matric scores across the time burden categories compare. Figure 48 depicts the cumulative Matric scores for the two time burden quartiles and illustrates that there are substantial inter and intra-gender differences. From the graph, it appears that females in the lowest time burden category have the highest cumulative Matric scores. Conversely, women with a heavy time burden appear to have the lowest cumulative Matric scores as the first three quartiles are clustered at the low end of the score range. While differences exist between the male cohorts this graph suggests the gap is wider across the female cohort.

Figure 48: Cumulative Maric Scores for men and women in the Lowest and Highest Time Burden Quartiles CAPS)

To confirm that the intra-gender gap in Matric scores across time burden categories larger for women, two bivariate OLS regression models were constructed. In the female model, the

difference in Matric scores across the time burden categories is highly significant and a heavy time burden is associated with a Matric score that is 1.69 points lower. The male model found the difference to be just significant (at 10%) and that a heavy time burden is associated with a Matric score that is 1.16 points lower. This means that there is a larger intra-gender disparity in Matric scores for women. To examine the inter-gender differences, a bivariate OLS regression of Matric scores was constructed for men and women in the highest time burden category. As the regression found no significant gender differences, the only significant disparity is intra-gender.

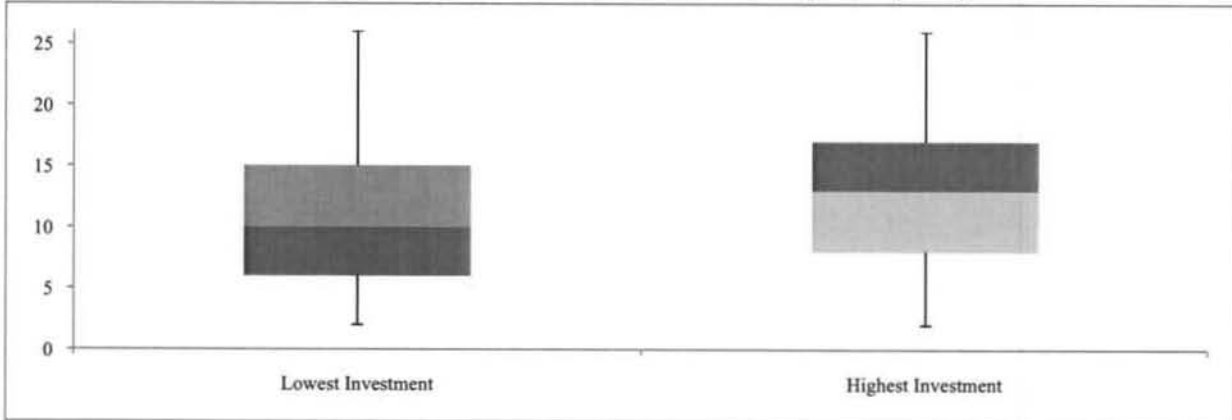
Overall, the evidence supports the hypothesis for this section. The investigation showed that a heavy time burden is associated with lower Matric scores and that the negative influence is larger for women. However, while a heavy time burden results in disparities within genders it does not produce a significant disparity between the matric scores of males and females. Therefore, the negative influence is confined across time burden categories and does not produce gendered results.

Parental Human Capital Investment

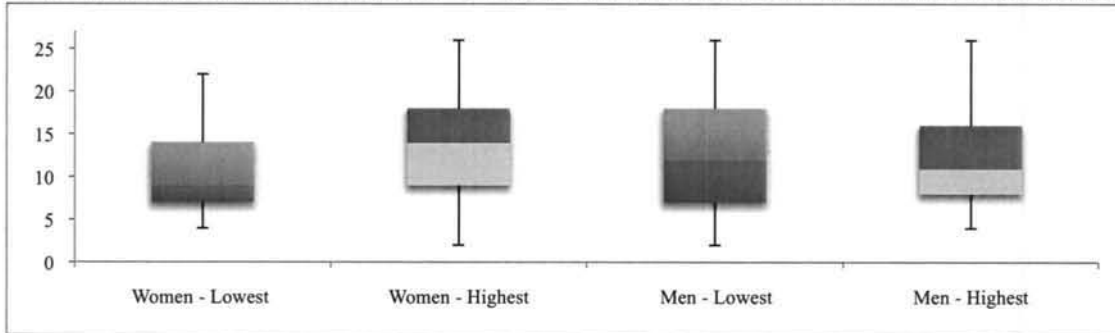
The final relationship to consider is the influence of parental human capital investment on cumulative Matric scores. The assumption is that a low parental investment will negatively influence Matric scores and, as females receive a lower level of parental investment, the negative influence will be larger for women. Figure 49 shows the distribution of cumulative Matric scores for the lowest and highest parental investment quartiles. The middle 50% of the highest investment category is positioned higher in the score range, which means this category has higher cumulative Matric scores. A bivariate OLS regression of Matric scores for the two investment categories verifies that the difference is highly significant and that a low parental

investment is associated with a Matric score that is 2.22 points lower. Together this evidence convincingly demonstrates that receiving a low parental investment negatively influences Matric performance.

Figure 49: Cumulative Matric scores for the First and Fourth Parental Investment Quartiles (CAPS)



The next line of investigation is to determine whether the disparity between the cumulative Matric scores of the two investment levels is larger for men or women. Figure 50 depicts the cumulative Matric scores for men and women in both investment categories. For women, the middle 50% of the lowest investment category is relatively lower and has a lower maximum score than the highest investment category. This demonstrates that for women, receiving a low parental investment is clearly associated with lower Matric scores. There appears to be less of a disparity within the male cohort. While men in the lowest investment category have wider variance across the middle 50%, the highest investment category has less variance and a higher minimum score of '4'. These slight differences suggest that while there appears to be some intra-gender variation, it is not as substantial as the female cohort.

Figure 50: Cumulative Matric Scores for men and women in the First and Fourth Parental Investment Quartiles (CAPS)

To confirm that women have a larger inter-gender Matric score disparity, two bivariate OLS regression models were constructed. In both models the difference in Matric scores between investment categories is highly significant and receiving a low level of parental investment has a negative association. For women, it is associated with a cumulative Matric score 2.83 points lower and for men it is associated with a cumulative Matric score 1.53 points lower. Therefore, the negative association of receiving a low level of parental investment on Matric performance is larger for women. To investigate the inter-gender differences in Matric scores, a bivariate OLS regression of men and women in the lowest parental investment category was built. As the regression reveals that there is no significant gender difference, the only significant differences occur within genders across the investment categories.

Thus, this investigation found that the presence of the 'usual suspects' is negatively associated with the Matric scores of men and women. Comparing the size of the negative influence, across investment categories, uncovered that the intra-gender disparity is larger for women. However, for both 'usual suspects', there was no significant inter-gender difference in Matric scores. Therefore, it can be concluded that the presence of the 'usual suspects' produces a disparity across investment categories but not across genders. As the intra-gender difference was consistently larger for women, this implies that the presence of the 'usual suspects' has a larger negative influence on the Matric scores of women.

In summary, the consistent effect of the presence of the 'usual suspects' was to produce a significant intra-gender disparity. Rather than resulting in a gendered performance, the 'usual suspects' are associated with a difference within genders. Furthermore, the effect did not consistently have a larger negative influence on one gender. In literacy scores, the influence was larger for men while in Matric scores the influence was larger for women. Therefore, the conclusions that can be drawn is that as their intra-gender disparity is not consistent to one gender and there is no inter-gender disparity, the presence of the 'usual suspects' does not result in a gendered performance. Overall, this demonstrates that the presence of the 'usual suspects' does not prohibit the educational success of women.

Chapter 7: Conclusion

At the outset, this report aimed to explore South Africa's achievement of gender parity across multiple dimensions. The first objective was to determine whether the gender parity in access was truly unique and if it extended to other measures. This report found that South Africa's achievement of gender parity in enrollment was rare in a regional context but not when compared to other middle-income countries. This exploration revealed that GDP/capita appears to be highly linked to primary level GPI but that parity at the secondary level is more complicated and difficult to achieve.

Additionally, this report found that the achievement of gender parity does extend to other measures of educational success. The metric of 'enrollment' focuses solely on participation and the objective in this report was to move beyond this, to consider achievement-based indicators. The review of other educational outcomes found that South Africa has also attained gender parity in most of these measures. The only outcome with a disparity is educational attainment, but this is explained by enrollment patterns and rates. The higher rate of repeating grade levels and dropping out at a younger age, causes the slight enrollment disparity at both school levels and ultimately leads to a disparity in total grade achievement. However, overall these findings establish that the South African education system does not produce gendered performance results.

The review of the 'usual suspects' verified that all are present and that they are more pronounced in the lives of women in the CAPS sample. The investigation of the influence of these factors on educational outcomes found that their presence is associated with a lower level of achievement, across all the indicators examined. However, it was found that the disparity resulting from the presence of the 'usual suspects' was not an intra-gender disparity. Rather, the presence of the 'usual suspects' consistently produced an achievement gap within each gender.

Therefore, rather than producing a gender disparity in the educational outcomes, the disparity is within the gender and across the 'usual suspect'.

The only outcome with a disparity across genders was educational attainment. In this outcome, it was found in both inter and intra-gender comparisons that 'being female' was associated with a relatively higher level of achievement. Exploring this phenomenon further revealed that the gap appears to be caused by the low-achieving males who have a heavy burden from the 'usual suspect'. These males fail to progress through the school system and don't transition to the secondary level. Thus, the investigation found that the presence of the 'usual suspects' strengthens the trend in the total population of a gender disparity in primary level enrollment.

Therefore, the overall conclusion that can be made from this report is that the 'usual suspects' do not adversely affect the educational success of women in South Africa. Rather, the gender disparities that do exist appear to be focused on a segment of low-achieving males. The male propensity for repetition at the primary level was strengthened by the presence of the 'usual suspects'. Investigating the characteristics and causal relationships of these low-achieving males would be an area of future research. In the end these findings were very surprising, as the 'usual suspects' are not having their overtly negative influence of the educational attainment of women.

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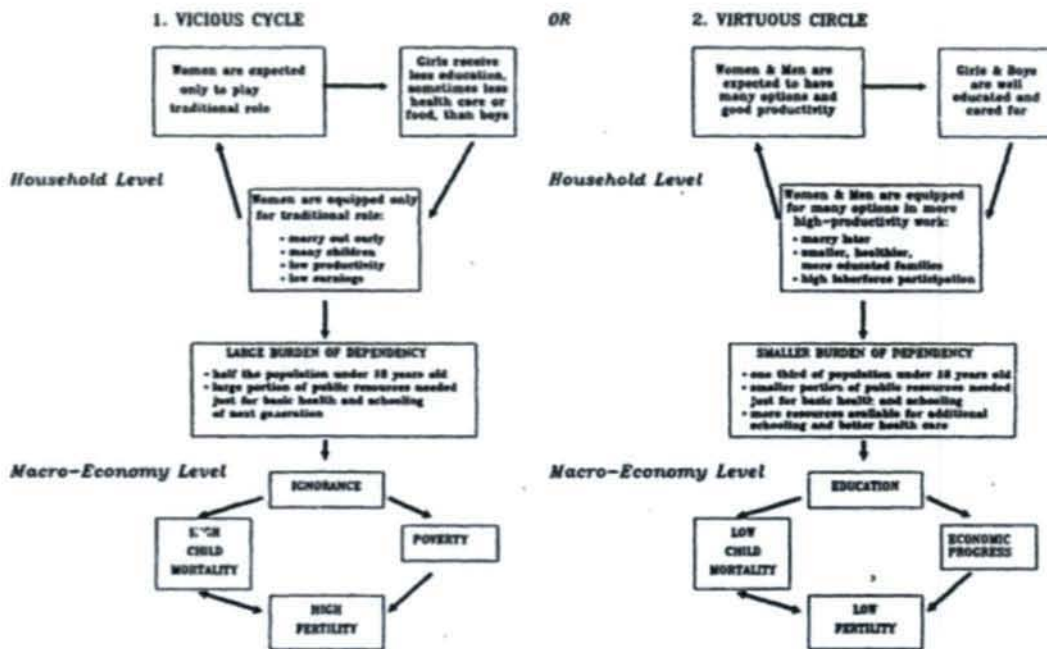
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Appendix A

Source: Summers, Lawrence. "Investing In All The People: Educating Women in Developing Countries". *The Work Bank Economic Development Institute Seminar Paper No. 45*. Washington, DC: The World Bank, 1994.

Figure 2: Educating Girls and Economic Development



Appendix B

Source: United Nations Educational, Scientific and Cultural Organization, "Gender-Sensitive Education Statistics and Indicators: A practical guide." *UNESCO: Division of Statistics: Paris, 2005.*

Factors affecting gender equality in education

DEMAND	SUPPLY
<p>Socio-economic factors</p> <ul style="list-style-type: none"> Poverty Direct costs (fees, uniforms, transportation) High opportunity costs/lower rate of return Girls needed for household/agricultural tasks Residence in remote, low population areas Limited employment opportunities for graduates Lower remuneration for women 	<p>Political/institutional factors</p> <ul style="list-style-type: none"> Budget constraints; Structural adjustment programmes Insufficient public support for the poor Political instability; Inconsistent educational policies Poor quality of education programmes Ill-adaptation of education systems to local learning needs Lack of clear strategy for women and girls' education Lack of public support for women in scientific activities Limited employment prospects Poor data collection mechanisms; Inadequate elements for progress assessment and policy formulation
<p>Cultural factors</p> <ul style="list-style-type: none"> Parents' low level of education Lower priority for girls' education Girls' education perceived as incompatible with traditional beliefs and/or religious principles Early marriages and pregnancies Role of the girl/woman as a wife and mother Sceptical attitudes towards the benefits and outcomes from educating girls 	<p>Factors linked to the school</p> <ul style="list-style-type: none"> Limited school/classroom space High school fees Low proportion of female teachers Teachers untrained/not sensitized to gender issues Stereotypes at school (curricula, textbooks) School curricula in conflict with traditional culture Orientation of girls/women to non scientific fields Lack of accommodations for or exclusion of pregnant adolescents and young mothers Sexual harassment; insecurity Distance from school Lack of school canteens Poor quality of hygienic facilities School calendar incompatible with farming cycles
<p>RESULTS</p> <ul style="list-style-type: none"> Limited access to schooling Low female enrolment School drop out, particularly at puberty age Low female participation in scientific/technical fields High proportion of illiterate women Scarce or low scale employment opportunities Reduced contribution to national economic and social development Limited bargaining power Absence from the political decision-making processes 	