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Research Submission on

The Impact of Social Security on School Enrolment in South Africa

submitted to the
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Poverty has a negative impact on school enrolment rates. Many poor children cannot attend school due to the unaffordable costs of education and/or because they have to work in order to supplement family income. Poor communities that are resource-constrained provide inferior educational services, which affects enrolment rates.

Education better equips people with skills and knowledge necessary to move themselves out of poverty. Increasing enrolment rates is thus an important policy issue. The old-age pension transfer programme is particularly effective in this regard.

Findings show a positive and statistically significant effect of government pension transfers on school attendance rates of poor children. The effects for poor school-age girls are particularly strong. Therefore, higher resources afforded to poor households by state transfers enable many poor children to stay in school.

1. INTRODUCTION

Reducing poverty and increasing educational services, particularly to poor households are important socio-economic objectives for improving social development and economic growth in South Africa. Providing income transfers through social security are mechanisms of reducing poverty. It is widely believed that not only does social security reduce poverty, but it also indirectly increases school enrolment rates.

This paper analyses the relationship between social security and school enrolment among school-age children. The first section of the paper (Section 2) examines the links between poverty and education: Poverty reduces school enrolment rates while increased school enrolment rates reduces poverty. The links between poverty and education are important considerations for poverty policy. The second section of the paper (Section 3) investigates the ability of social security (through old-age pensions) to increase school enrolment rates. The final section (Section 4) provides conclusions.

2. POVERTY AND EDUCATION

An education is a very important item to obtain, no matter where one is located in this vast world. “Psacharopoulos (1994) concludes that primary schooling remains ‘the number one investment priority’ for developing countries, with the social rate of return to investment in primary education averaging 24 percent in Sub-Saharan Africa and roughly 20 percent in Asia and Latin America.”[1] The problem is that although an education is very important, not everyone is able to obtain one. This section explores how poverty reduces the ability of poor children to obtain an education, and provides a brief outline of the role that education plays in reducing poverty.

1 Case (2001).

2.1 POVERTY REDUCES SCHOOL ENROLMENT RATES

For many poor children in South Africa, the prospects of education are severely hampered by conditions of poverty. This section analyses how conditions of poverty reduce school enrolment rates.

2.1.1 Low investment in education

Many poor households cannot afford to invest their limited income into education. In South Africa, "[a]lthough the current constitution of the Republic of South Africa (adopted in 1996) guarantees education as a right, it is not free. In addition to the direct cost of school fees (tuition), students and their families must cover the indirect costs of books and supplies, school uniforms, and often transportation to school as well. Poorer families who are disproportionately represented among non-whites (Klasen 1997), are less able to afford the costs of education."[2] The amount that a school may charge for tuition can vary immensely. The fee may be "as little as 50 rands (about eight U.S. dollars) to 6,000 rands (about $1000) and above, depending in part on the quality of the school."[3] These prices are very often unreachable for those who are impoverished."

There exists a relationship between education and poverty. "Poverty, pervasive across the region [of Africa], is a barrier to expanding education access and improving learning outcomes."[4] "Of the 35 countries the *United Nations Development Programme* (UNDP) classifies as having low human development, 28 are in Sub-Saharan African (UNDP 1999). More than 40 percent of Africans live below the $1 a day poverty line, and the incidence of poverty as well as the absolute numbers of people living in poverty have

2 Anderson (2001).
3 Anderson (2001).
4 World Bank (2001).

increased since the late 1980s."[5] Investments in education by governments and households are hindered by the vast amounts of poverty, resulting in low educational attainment.[6]

2.1.2 Family income supplemented by children

"When households become impoverished, older children are often pulled out of school to supplement family income and pay for the school fees of younger siblings. A study conducted in Tongo, for example, found that in roughly half of the households in which the breadwinner became unemployed, at least one child was withdrawn from school."[7] Overall enrolment rates are drastically lower for the poor at all levels. This is particularly true at the secondary level.[8] In addition, even if those who are poor remain in school, these children often spend more time contributing to the household income than those children from better off households. "As a result they are less likely to spend out-of-school hours on schoolwork, more likely to be absent from school during periods of peak labour demand, and more likely to be tired and ill-prepared for learning when they are in the classroom."[9]

2.1.3 Inferior educational services in poor communities

Not only can poverty be detrimental to education at an individual level, but poverty can also hinder education for a whole community. Governments have "increasingly required local communities to meet capital and nonwage recurrent costs, which means that educational services in poor communities are likely to be inferior

5 World Bank (2001).
6 World Bank (2001).
7 UNICEF (2001).
8 Catro *et al.* (1999).
9 World Bank (2001).

because their resources are so constrained."[10] Further, enrolment is affected when there are such issues as leaky, unusable classrooms that lack electricity.[11] So, even if the poor decide to attend these - less than ideal educational facilities, the quality of education that they receive will be less than those in better off communities.

2.2 EDUCATION REDUCES POVERTY LEVELS

It is important to note the links between poverty and education. While poverty reduces the ability of children to attend school, education increases the ability of people to move out of poverty. "Poverty is a key obstacle to expanding access to education and improving learning outcomes in Africa, while education is instrumental in eliminating poverty."[12]

It is instrumental in reducing poverty because "education develops intellectual capacity and social skills, and children who complete at least four years of schooling- considered the minimum for achieving basic literacy and numeracy- are better equipped to move out of poverty. For example, levels of education correlate with income levels and with the ability to hold a job in the formal sector." [13]

Those children that do not attend school are almost always poor, from disadvantaged groups, and are often in remote areas. "Nearly 60 percent of out-of-school children in Africa are girls."[14] Educating children, particularly girls is key to combating poverty. "Educated girls have greater confidence to make decisions for themselves. They marry later in life and are more likely to space out their pregnancies. As a result, they tend to have fewer children and are more likely to seek medical

10 Catro *et al*. (1999).
11 Catro *et al*. (1999).
12 World Bank (2001).
13 UNICEF (2001).
14 World Bank (2001).

attention for themselves and their children. They are better informed about good nutrition and childcare. Women who were educated as girls are far more likely to enrol their own children in primary school. Educating children, particularly girls, is therefore a critical part of breaking the inter-generational cycle of poverty."[15]

2.3 POLICY IMPLICATIONS

There is a need for investment in the poor. "When children start life with all the disadvantages of poor health, inadequate nutrition and low education, there are fewer opportunities for them to move out of poverty. When they start new families, their own poverty will manifest itself in the next generation."[16] There will be a continuation of the inability of the poor to pay for education.

In looking to more traditional forms of social security, "most developed countries have government-operated or government-supported programmes to provide all or most of the following: old-age pensions; unemployment benefit; family income support; facilities for the infirm or disabled; education; and health services (Atkinson 1989; Barr 1987)."[17]

A review of spending on social services in Africa suggests that the educational subsidies "are not particularly well targeted to the poorest."[18] There is an exception, which is subsidy to primary education, but even there it appears "inequitable when judged against the numbers of school-age children in the poorest groups and when alternative measures of economic welfare are used."[19]

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15 UNICEF(2001).
16 UNICEF (2001).
17 Burgess and Stern (1991:41).
18 Catro *et al* (1999).
19 Catro *et al* (1999).

Thus free basic education sometimes combined with targeted support—in the form of free books and scholarships—will often be needed to ensure that the poorest children, especially girls, are enroled in basic education."[20] For upper levels of education, options such as scholarships based on need and student loans help allow the poor continued access to education.[21]

In Africa, the argument can be made that social security does support the ability of children to attend school, although that is not directly what the social security benefit is meant to do. "Because so many of the elderly among South Africa's African population live with children, the social pension is also effective in putting money into households where children live. In most countries, social expenditures on the elderly and social expenditures on children are alternatives, but South African living arrangements mean that, at least to some extent, the pension is an instrument that simultaneously reaches both groups. The fraction of children living with a pensioner is highest among children whose household *per capita* incomes are the lowest, so that the pension not only reaches the households in which the children live, but disproportionately reaches children in poverty."[22] This money that has reached impoverished children may be used to help pay for their schooling fees.

The next section investigates the relationship between social security and school enrolment through an analysis of the potential of social security to support the ability of children to attend school in South Africa.

20 World Bank (2001).
21 World Bank (2001).
22 Case and Deaton (1996).

3. SOCIAL SECURITY AND SCHOOL ENROLMENT IN SOUTH AFRICA

Public programmes that provide cash transfers to the poor often have consequences for the behaviour of untargeted individuals due to income sharing within households. Several studies have already investigated the impact of old age pensions on labour incentives and household expenditure in South Africa.[23] Here we focus on the relationship between old age pensions and school enrolment among school-age children.

A priori, we might expect that by raising incomes, pension transfers support schooling in two ways. First, to the extent that there are financial barriers to school attendance – purchasing school supplies, uniforms, tuition, transportation, etc. – the boost in disposable income provided by a pension could help pay the otherwise unaffordable costs of attending school. Second, a pension could relieve the opportunity cost of school attendance; with a pension in hand, a family might be more able to forgo a child's contribution to household income (or food production in the case of subsistence farmers) in favour of making a long-term investment in education. Analysis of the data yields three important conclusions:

- Pensions do have a significant and positive effect on the likelihood that a school-age child will attend school.
- This effect of pensions on school attendance is strongest among poor households.
- The effect is stronger for girls than for boys, helping to redress gender disparities in school attendance rates.

23 Bertrand, Miller and Mulainathan (2000); Case and Deaton (1998).

3.1 DATA

Our analysis uses data from the 1997 *October Household Survey* (OHS), a nationally representative sample of South African households conducted annually to measure trends in employment and welfare. Unlike more recent OHS surveys, the 1997 data include continuous measures of household expenditure that allow us to get a more accurate sense of where a particular household falls in the distribution of gross *per capita* expenditures.

3.2 METHODOLOGY

Our methodology closely follows that of Bertrand, Miller and Mullainathan (2000). We focus on the enrolment of children aged 6 to 18 living in three-generational households.[24] [25] By focusing on school-age children living in households with both parents and grandparents, we address the possibility that children who live with parents and grandparents in a single household differ systematically from their peers who live only with grandparents with respect to school attendance. Focusing on three-generational households thus reduces heterogeneity in our test sample.

Three-generational households are quite common among Africans. According to our data, more than a quarter (27 percent in 1997) of African households in the country contain three generations, compared with 15 percent for non-Africans. Also the portion of African three-generational households receiving some pension disbursement is fairly high – over 52 percent – and these households represent 87 percent of those eligible to receive assistance. These numbers are consistent with findings by Case and Deaton in

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24 Three-generational households contain children, working age adults, and adults in pensionable age.

25 South African children begin the 1st grade at age 7 and receive their matric at the age of 17. We expand the age range to account for the usual group of early- or late-starters present in every school system.

their analysis of the 1994 *Southern Africa Labour and Development Research U* (SALDRU) survey.

The dependent variable in our regressions is a dummy variable indicating full-time attendance at a school, college, technikon (technical school), or university. We work with three variables to assess the impact of pension transfers, that is, a level measure of monthly pension receipts, a dummy variable equal to 1 if households receive some pension transfer, and a dummy variable equal to 1 if any member of the household is eligible to receive a pension. As Bertrand *et al*. (2000) note, using a dummy for household eligibility can help to account for potential endogeneity in take-up rates, the possibility that factors in our regression (like the education of the household head) are determinants of pension take-up.

A key point of our analysis is to highlight the significance of poverty in the relationship between school enrolment and pensions. There is little reason to expect that the impact of pensions will be the same for rich households as for poor households; because it represents a greater relative increase in disposable income, an additional Rand of pension benefits is expected to have a stronger influence on the behaviour of poor households. To investigate these effects we apply our model to consumption quartile subsamples of the population as determined by *per capita* household expenditure.

Another important issue in our analysis is to test for differential gender effects of pension transfers on schooling. By adding an interaction term to our specification we gain insight into this question.

3.3 SUMMARY OF RESULTS

We find significant positive correlations between pensions and school attendance for each of our variables of interest – monthly pension receipts, household pension

receipt dummy, household pension eligibility dummy, and instrumented monthly pension receipts. Multivariate results presented in Appendix Table 2 show that, controlling for education of the household head, student's gender and age, provincial effects, rural areas, household size, and the age structure of the household, both continuous pension receipts and our pension dummy have a positive and highly significant correlation with full-time school attendance.

According to our baseline regressions, a one-Rand increase in monthly pension transfers corresponds to a 0.038 percent increase in the likelihood of full-time school attendance. On average, African children living in three-generation households with pensioners are about 3.1 percent more likely to attend school than are their peers in non-pension households. Having an age-eligible member of the household is also positively and significantly correlated with school attendance, suggesting that our result is not due to endogeneity in the specification. For ease of interpretation we have presented *Ordinary Least Squares* regressions, however, we confirm that probit regressions (not reported) yield essentially the same results.

Second, by looking at intra-quartile regressions it is clear that the above conclusions are driven by the influence of pensions on the school-attendance behaviour of children living in poor households. There is a strong relationship between poverty as described by household expenditure brackets and school attendance (chi-squared test of independence 69.0). Indeed, as shown in Appendix Table 3, pension variables are not significant determinants of school attendance for children in living in the upper three-quarters of the expenditure distribution. Whereas our baseline coefficient on household pensions was 0.038 for the entire sample, if we restrict our regression to consider only households in the poorest expenditure quartile, the same specification returns a highly significant coefficient of 0.079. Similarly, our pension dummy variable regression

suggests that poor children are nearly 5 percent more likely to attend school if they li with a pensioner. Again, probit results yield essentially the same conclusions.

Third, pensions give a stronger boost to the school attendance rates of girls – who among the poor tend to have lower rates of schooling than boys. In Appendix Table 4, we introduce an interaction term into our specification to investigate whether pensions have differential effects by gender. Results are presented for children living in the poorest quarter of the sample – where the transfer has its impact. The coefficient on our gender dummy tells us that school-age African girls are on average about 4 percent less likely to attend school than boys with similar demographic and household characteristics. One Rand of pension receipts raises the likelihood that a boy in the poorest quarter of the population will attend school by 0.04 percent. The same one Rand, however, increases the likelihood that a girl will attend school by 0.11 percent. Our other specifications show similar results. Girls who live in pensioner households are 7 percent more likely to attend school, compared with 2.7 percent for boys.

An important issue is whether the observed benefits of pension transfers are unique to pensions or apply equally to other forms of direct cash transfers. The distinguishing feature of the pension is that it is large and distributed to the elderly, usually to elderly women. A question to consider, therefore, is "to what extent are these results dependent on the recipient of the transfer being a grandparent, or more specifically, a grandmother?" It seems unlikely that these concerns would account for the strong trends we observe in the data. Certainly, however, further investigation of the pension-schooling relationship is warranted.

3.4 POLICY IMPLICATIONS

These results have important policy implications. The fact that pensions promote school attendance provides further support for the notion that old age pensions have benefits to society that extend beyond preserving the welfare of the elderly. Indeed, any improvement in rates of school attendance could provide long-term returns to the country in such diverse areas as health, HIV/AIDS prevention, labour productivity, and by way of these, economic growth. Few things provide such widespread benefits as education, and a confirmed positive influence of official transfers on school attendance advances a strong argument in favour of maintaining or expanding such policies.

4. CONCLUSION

Poverty has a negative impact on school enrolment rates. Many poor children cannot attend school due to the unaffordable costs of education and/or because they have to work in order to supplement family income. Poor communities that are resource-constrained provide inferior educational services, which affects enrolment rates.

Education better equips people with skills and knowledge necessary to move themselves out of poverty. Increasing enrolment rates is thus an important policy issue. The old-age pension transfer programme is particularly effective in this regard.

Findings show a positive and statistically significant effect of government pension transfers on school attendance rates of poor children. The effects for poor school-age girls are particularly strong. Therefore, higher resources afforded to poor households by state transfers enable many poor children to stay in school.

APPENDIX

Effect of Old Age Pensions on Full-time School Attendance of 6 to 18 Year-Old African Children in Three-Generational Households

Appendix Table 1: Summary statistics

	6 to 18 Year-Old African Children Living in Three Generational Households									
	Total		Richest 1/4		Second 1/4		Third 1/4		Poorest 1/4	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Full-time student	0.863	0.344	0.909	0.287	0.890	0.313	0.871	0.335	0.837	0.369
Household monthly pension receipt	294	324	262	310	296	329	324	347	277	306
Percent living in pensioner households	0.522	0.500	0.473	0.500	0.510	0.500	0.563	0.496	0.506	0.500
Percent female	0.510	0.500	0.521	0.500	0.530	0.499	0.507	0.500	0.502	0.500
Years of schooling of household head	4.227	4.227	6.359	4.896	5.437	4.322	4.198	4.178	3.393	3.847
Age	11.84	3.750	11.96	3.75	11.87	3.73	11.83	3.77	11.82	3.74
Percent rural	0.682	0.466	0.473	0.500	0.573	0.495	0.696	0.460	0.752	0.432
Percent urban	0.318	3.227	0.527	0.500	0.427	0.505	0.304	0.540	0.248	0.568
Household size	8.682	2.496	7.014	2.452	7.456	2.464	8.331	3.112	9.718	3.352
#observations		13794		971		2539		4275		6009

Appendix Table 2: Baseline regressions

Effect of Old Age Pensions on Full-time School Attendance of
6 to 18 Year-Old African Children in Three-Generational Households

Dependent Variable: Full-time School Attendance Dummy

	[1]	[2]	[3]
Monthly pension receipts * 1000	0.0384	-	-
T-Statistic	4.2550		
Household pension dummy	-	0.0307	-
		5.2650	
Household eligibility dummy	-	-	0.0273
			4.5820
Household Head Level of Education	0.0062	0.0064	0.0063
	9.2630	9.5300	9.4140
Female	-0.0137	-0.0136	-0.0134
	-2.5550	-2.5270	-2.5020
Age	2.6942	2.6932	2.6962
	20.1570	20.1560	20.1740
Age^2	-0.3252	-0.3251	-0.3255
	-18.0060	-18.0060	-18.0260
Age^3	0.0171	0.0171	0.0172
	16.4710	16.4720	16.4920
Age^4	-0.0003	-0.0003	-0.0003
	-15.4360	-15.4380	-15.4570
Rural	-0.0091	-0.0091	-0.0086
	-1.2520	-1.2600	-1.1820
Household size	-0.0001	-0.0003	-0.0004
	-0.0430	-0.1260	-0.2060
R^2	0.1651	0.1657	0.1653
#observations	13794	13794	13794

Notes:

1/ Regressions also include province dummies and number of household members aged 0 to 5, 6 to 15, 16 to 18, 19 to 21, and 22 to 24. Joint tests of province and age structure variables are significant at the 1 percent level for all regressions.

Appendix Table 3: Relevance of poverty

Effect of Old Age Pensions on Full-time School Attendance of
6 to 18 Year-Old African Children in Three-Generational Households

Dependent Variable: Full-time School Attendance Dummy

Sample restriced by per capita household expenditure quartiles:	Richest 1/4	Second 1/4	Third 1/4	Poorest 1/4	Richest 1/4	Second 1/4	Third 1/4	Poorest 1/4
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Monthly pension receipts * 1000	0.0271	0.0182	-0.0007	0.0787	-	-	-	-
T-Statistic	0.8790	0.8920	-0.0450	5.1420				
Household pension dummy	-	-	-	-	0.0286	0.0086	0.0156	0.0484
					1.4840	0.6520	1.4930	5.2290
Household head level of education	0.0032	0.0037	0.0056	0.0068	0.0034	0.0036	0.0059	0.0069
	1.5910	2.5580	4.6780	5.9300	1.6990	2.4970	4.9440	6.0170
Female	-0.0254	-0.0217	0.0000	-0.0203	-0.0267	-0.0220	0.0000	-0.0198
	-1.4060	-1.8500	0.0010	-2.3810	-1.4780	-1.8730	0.0040	-2.3250
Age	1.5680	2.1366	2.6646	3.1314	1.5338	2.1412	2.6593	3.1274
	3.4410	7.3420	11.2450	14.8540	3.3620	7.3580	11.2270	14.8360
Age^2	-0.1936	-0.2537	-0.3246	-0.3776	-0.1893	-0.2544	-0.3239	-0.3771
	-3.1530	-6.4620	-10.1420	-13.2410	-3.0790	-6.4790	-10.1240	-13.2240
Age^3	0.0105	0.0131	0.0172	0.0199	0.0102	0.0132	0.0172	0.0199
	2.9640	5.8080	9.3560	12.0970	2.8940	5.8260	9.3380	12.0800
Age^4	-0.0002	-0.0003	-0.0003	-0.0004	-0.0002	-0.0003	-0.0003	-0.0004
	-2.8510	-5.3390	-8.8270	-11.3350	-2.7850	-5.3580	-8.8090	-11.3180
Rural	-0.0272	-0.0431	-0.0053	0.0196	-0.0276	-0.0428	-0.0066	0.0203
	-1.2060	-2.9610	-0.4130	1.5740	-1.2250	-2.9420	-0.5170	1.6290
Household size	0.0036	0.0085	-0.0006	-0.0021	0.0032	0.0091	-0.0021	-0.0012
	0.4750	1.6160	-0.1460	-0.6430	0.4270	1.7460	-0.5590	-0.3860
R^2	0.0923	0.1330	0.1529	0.2065	0.0937	0.1329	0.1534	0.2066
#observations	971	2539	4275	6009	971	2539	4275	6009

Notes:

1/ Regressions also include province dummies and number of household members aged 0 to 5, 6 to 15, 16 to 18, 19 to 21, and 22 to 24. Joint tests of these two vectors are significant at the 1 percent level for all regressions.

2/ Sample sizes differ across quartiles because quartiles are defined for the entire sample; children in three generation African households are far more common in the poor end of the expenditure distribution.

Appendix Table 4: Gender effects

Effect of Old Age Pensions on Full-time School Attendance of
6 to 18 Year-Old African Children in Three-Generational Households

Dependent Variable: Full-time School Attendance Dummy

Sample restriced by per capita household expenditure quartiles:	Poorest 1/4 [1]	Poorest 1/4 [2]	Poorest 1/4 [3]
Monthly pension receipts * 1000	0.0421	-	-
T-Statistic	2.0140		
Household pension dummy	-	0.0268	-
		2.1320	
Household eligibility dummy	-	-	0.0293
			2.2770
Household head level of education	0.0069	0.0070	0.0070
	5.9660	6.0570	6.0150
Female	-0.0402	-0.0416	-0.0343
	-3.4940	-3.4280	-2.7350
Female*monthly pension*1000	0.0716	-	-
	2.5730		
Female*HH pension dummy	-	0.0429	-
		2.5200	
Female*HH eligibility dummy	-	-	0.0263
			1.5360
Age	3.1317	3.1265	3.1175
	14.8630	14.8390	14.7790
Age2	-0.3776	-0.3769	-0.3757
	-13.2460	-13.2210	-13.1660
Age3	0.0199	0.0198	0.0198
	12.0990	12.0730	12.0220
Age4	-0.0004	-0.0004	-0.0004
	-11.3330	-11.3070	-11.2580
Rural	0.0196	0.0202	0.0223
	1.5760	1.6260	1.7940
Household size	-0.0020	-0.0011	-0.0013
	-0.6100	-0.3480	-0.4040
R2	0.2074	0.2074	0.2059
#observations	6009	6009	6009

Notes:
1/ Regressions also include province dummies and number of household members aged 0 to 5, 6 to 15, 16 to 18, 19 to 21, and 22 to 24. Joint tests of province and age structure variables are significant at the 1 percent level for all regressions.

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