Are Returns to Education for the Employed and Self-employed Comparable? The Case for Uganda

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Introduction

Education can be a policy tool to reduce poverty by increasing human capital, labour productivity and earnings. It is well documented that there is a positive relationship between education and earnings (Schultz, 2003; Psacharopoulos, 2004) although in developing countries returns to education seem to decline as one moves up the earnings distribution (Patrinos et al, 2006; Kingdon and Söderbom, 2007).

Uganda has made substantial investments in education through implementing universal primary (since 1997) and secondary (since 2007) education. The main objective of this research is to estimate the returns to education for workers, distinguishing wage employees from the self-employed (considered to be those employed in the informal sector), in Uganda. We estimate the returns for an additional year of schooling and for each level of educational attainment, and address the trend over time (how results compare to earlier studies) and along the earnings distribution.

Data sources and description

We use two waves of panel data: 2005/06 Uganda National Household Survey (UNHS) and 2009/10 Uganda National Panel Survey (UNPS) with a total of 3,199 individuals who have reported earnings distributed as shown in Table 1.

Table 1: Distribution of Individuals with calculated monthly earnings in US dollars.

	Pooled			2005/06			2009/10		
	Obs	Mean	Median	Obs	Mean	Median	Obs	Mean	Median
Wage	2,344	88.12 (481.71)	41.19	1,299	66.53 (118.18)	32.96	1,045	114.96 (708.59)	51.36
Self	855	55.73 (136.23)	24.64	570	53.19 (157.67)	19.5	285	60.81 (77.21)	32.04
Total	3,199			1,869			1,330		

Source: 2005/06 UNHS and 2009/10 UNPS, standard deviation in parentheses.

Empirical strategy

Basing on the human capital theory, we use the Mincerian framework to estimate pooled regression models for the employed and the self-employed. The log monthly earnings variable is used as the dependent variable and the explanatory variables include: education, experience, gender, location and the year dummy.

❑ Estimate three OLS models: model 1: use years of schooling, model 2: include quadratic term of schooling and model 3: use levels of educational attainment.
❑ Control for endogeneity using 2SLS with father's and mother's educational attainment as instruments.
❑ Control for selection bias using Heckman model with marital status and number of children as exclusion restrictions.

Results

Table 2: Returns to an additional year of schooling

	OLS	2SLS	Heckman
Wage	0.154*** (0.005)	0.246*** (0.025)	0.148*** (0.006)
R^2/IMR	0.332	0.287	-0.813***
Obs	2,038	1,395	17,364
Self	0.161*** (0.010)	0.238*** (0.042)	0.160*** (0.010)
R^2/IMR	0.282	0.270	-0.167
Obs	700	524	17,515

Figure 1: Marginal returns to an extra year at each educational level for the employed
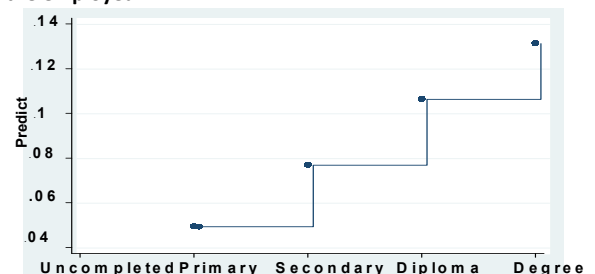

Figure 2: Marginal returns to an extra year at each educational level for self-employed
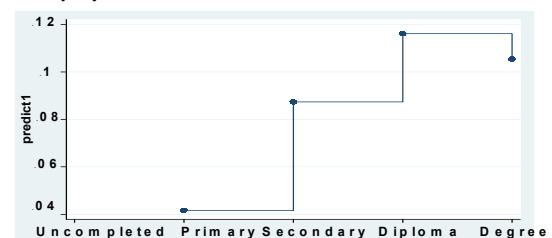

Table 3: Quantile regression by employment type

Quantile	Wage	Self
0.1	0.180*** (0.011)	0.194*** (0.015)
0.25	0.179*** (0.007)	0.184*** (0.014)
0.5	0.153*** (0.007)	0.156*** (0.011)
0.75	0.139*** (0.008)	0.143*** (0.017)
0.9	0.119*** (0.008)	0.137*** (0.018)

Conclusion

❑ Returns on education to the employed and self-employed in Uganda are similar, which is in support of the human capital theory.
❑ Marginal returns are high thus investment in education in Uganda is still viable and attractive.
❑ Returns to education appear to have decreased over time.
❑ Returns decrease with quantile, therefore investment in education in Uganda is income equalizing.
❑ We find evidence of gender wage gap, which is an area of further research.