



Does every Cloud have a Silver Lining?

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Key messages

- Rural households cope with rainfall variability by adjusting the human capital investments and work decisions of adolescents.
- Rainfall substantially affects the school-work decisions in agricultural households and non-agricultural households through opposite channels.
- In the face of climate-induced income uncertainty, improved access to credit facilities and higher job creation can serve as mitigation strategies.

Context and problem

Climate change disproportionately affects rural economies, particularly in poorer regions such as sub-Saharan Africa, where livelihoods depend on weather fluctuations. South Africa, a middle-income country located within a drought belt, has experienced exacerbated drought conditions in recent years. In 2015-2016, the country suffered the worst drought in decades, which substantially decreased food production (World Bank Group, 2021). To cope with weather events, households employ several strategies, including adjusting the human capital investments and labour supply responses of household members as a form of ‘self-insurance’.



Source: United Nations ,South Africa.

Rainfall shocks, as a proxy for agricultural productivity shocks, can affect the school–work decisions of adolescents and young adults in rural South Africa. Adolescents are particularly vulnerable as they may be forced to enter the labour market to cope with shocks, resulting in school termination and, consequently, long-lasting negative effects on human capital accumulation. Exploring the weather shocks-human capital nexus is crucial for South Africa, which has around 207,714, out-of-school adolescents and a low net secondary school enrollment rate of 70.3 % in 2019 (UNESCO, 2019).

Results and implications

Higher rainfall during the current growing season increases household income and therefore, increases school enrollment and real education expenditures. The effects of current rainfall on the labour market outcomes demonstrate considerable heterogeneity for male adolescents across agricultural and non-agricultural households, as opposed to previous studies which focus on agricultural households in rural economies. For non-agricultural households, favourable rainfall in the current season decreases labour force participation and employment among male adolescents. Household wealth shields the effects of current rainfall on schooling and labour market outcomes in these households.

Improved economic conditions in rural economies have persistent effects and encourage labour market participation, especially among males, in the following periods. Rainfall in the previous growing season increases the propensity to work among male adolescents. These strong effects of lagged rainfall on the work propensity of male adolescents do not come at the cost of reduced enrollment and are instead, allocated by decreasing leisure. The labour supply decisions of female adolescents are not responsive to rainfall fluctuations as they are more likely to allocate time from domestic activities towards schooling.

Policy recommendations

Policies aimed at improving educational outcomes in rural economies often fail to account for rainfall conditions affecting household income. In the context of limited financial markets, poorer households face borrowing constraints and have limited savings to smooth educational investments against transitory income fluctuations. In addition to weather-induced uncertainty, the risks faced by adolescents as they transition to adulthood are exacerbated by poor infrastructure and lower labour market opportunities in rural areas.

Based on our findings, we propose the following policy recommendations:

- *Higher access to credit facilities* may mitigate the impacts of negative rainfall shocks on human capital accumulation and work propensity and enable poorer non-agricultural households to cope with unexpected weather shocks.
- *Welfare programmes* aimed at relieving liquidity constraints may enable households to smooth consumption and reduce reliance on the labour market responses of adolescents.

- *Creating better job opportunities* in rural labour markets could absorb the labour supply during favorable rainfall conditions and has implications for reducing the extremely high youth unemployment.

Conclusions

Overall, we demonstrate substantial changes in education and labour market outcomes induced by rainfall variations not only in agricultural households but also in non-agricultural households. Our paper suggests policy interventions targeting adolescents at sensitive periods of human capital formation, especially in the face of climate-induced uncertainty. Policies facilitating resilience to climate shocks among vulnerable households in rural areas may prevent human capital losses during times of negative agricultural productivity shocks. Such policies may contribute towards achieving Sustainable Development Goals 4 and 8 of learning opportunities and quality educational attainment, and productive employment, respectively in weather-dependent rural economies.

Sources cited

UNESCO. (2019). Fact sheet no. 56. Paris.

Retrieved from <http://uis.unesco.org/sites/default/files/documents/new-methodology-shows-258-million-children-adolescents-and-youth-are-out-school.pdf>.

World Bank Group. (2021). Climate risk profile: South Africa.



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