

Will rising temperatures derail Africa's rise?

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Africa is on the move. After two decades of decline, fortunes reversed by the end of the 1990s, resulting in a decade of strong economic growth and sizeable improvements in sanitation, education and health.

Real incomes per capita in sub-Saharan Africa grew by more than 30 per cent over the last 10 years, and six countries from the continent made it on the list of the 10 fastest-growing economies in the world. Big men, although still around in some parts of the continent, have become less common; elections have become more frequent; and many civil wars have finally ended.

All this has produced a narrative of “Africa Rising” and a widespread optimism that Africa is finally on the right track. Indeed, the 21st century may well turn out to be Africa's century.

Or not. Ted Miguel's keynote address at the annual conference of the Centre for the Study of African Economies (CSAE) in Oxford, highlighted a potentially important concern.

Applying a common statistical framework to a large number of studies on the link between temperatures and human violence, Miguel and his co-authors find a remarkably consistent and strong

correlation between exceptionally high temperatures and manifestations of violence.

Drawing on detailed data from a variety of countries and studies, they show that exceptionally high temperatures are correlated with significant increases in witch killings (Tanzania), rapes (US), murders (US), aggressive behaviour of baseball players (US) and more frequent and more aggressive horn-honking.

Applying the model to civil wars, Miguel and his team find that a one standard deviation increase in temperatures is correlated with an 11 per cent increase in civil war onsets. Average temperatures in sub-Saharan Africa are forecasted to rise by two degrees Celsius by 2050.

This represents an increase of three standard deviations. Applying the findings, this could increase civil war onsets by 33 per cent. The link between high temperatures and war onsets is likely to run through the impact on economic conditions, as research shows that a one degree increase in temperatures is correlated with a 1.5 percentage point decrease in GDP growth.

So there would be a double negative effect: Temperature shocks would drive down economic indicators, which in turn would increase—in the well-known Collier-Hoeffler framework—the likelihood of conflict that would in turn have devastating impacts on the economy and the people. Fortunately, there are a number of caveats.

Miguel and co-authors examine the impact of temperature “shocks”, extreme deviations from the average, on violence. An increase in temperature of two degrees Celsius over a 50-year period (0.05 degrees per year) is probably not a “shock”.

This caveat would, however, cancel out if higher average temperatures were to be correlated with more frequent and steeper temperature swings. Also, given the time-period, we would expect African countries to adapt and put policies into place to mitigate the impact of rising temperatures (although some African governments will do so better and faster than others).

What do you think will be the impact of global warming on Africa’s future?

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