



ECONOMY

Making South Africans more productive

There's no two ways about it: If we want to prosper, we need to produce more than we currently do. And in order to achieve that, all South Africans will have to become more productive.

Economic growth is defined, in its most basic form, as doing more with less. Economists often overcomplicate things. We talk about "an increase in GDP per capita of 2%" when we could simply say "the average South African produced 2% more than last year".

More production translates into greater incomes. Take India and China. At an average growth rate of 7%, these countries will double their production/output/income in 10 years. In contrast, if SA continues to grow at 2%, it will take 36 years to double our income.

The Indians and Chinese also show that it is only economic growth that will allow us to escape poverty. We cannot redistribute ourselves rich. Even if incomes were equalised in SA, we'd still be poorer than those Americans who live below the poverty line.

The inescapable truth is that if we want to prosper, we need to make South Africans, all of us, more productive; we must produce more than we currently do.

With an unemployment rate upwards of 30%, this would not seem too difficult. A lot of people are able and willing to work – to produce stuff – but they currently cannot find employment at the price they are willing to work for. How we address this mismatch is a question that should occupy the minds of the smartest people in our society.

Perhaps we need more students to study growth theory, industrial organisation, labour economics and economic history – compared to India and China, for example, too few South Africans take up graduate studies in Economics.

But perhaps we also need more scientists, entrepreneurs, tinkerers, coders, designers, educators and experimenters with the vision and ability to make their fellow citizens more productive. In short: we need more people like Norman Borlaug.

An agronomist with a PhD in plant pathology, Borlaug became fascinated with the productivity of crop farming. In the 1940s, he moved to a research unit in Mexico where he began developing high-yield, disease-resistant wheat varieties. His varieties, combined with modern agricultural production techniques, soon improved Mexican farmers' incomes, and spread to other countries. By 1963, Mexico became a net exporter of wheat. Between 1965 and 1970, wheat yields nearly doubled in Pakistan and India. In 1970, Borlaug was awarded the Nobel Peace Prize for leading the 'Green Revolution', a massive transformation of agricultural productivity in mostly Latin America and Asia.

A new NBER working paper by three economists spells out just how consequential this revolution was. Their study finds that a 10-percentage point increase in the share of area under high-yielding varieties in 2000 is associated with a massive 10 to 15 percentage point increase in per capita GDP. Put differently, if a country moves from having no high-yielding crops to having half its crops of the high-yielding type, then income will almost double.

That's why Borlaug is considered to have saved almost a billion people from starvation.

Higher agricultural output usually results in fertility increases as food becomes more abundant. But the authors show that this was not the case with the Green Revolution. Higher agricultural yields actually reduced population size, as parents chose quality over quantity.

The paper also shows that the new high-yielding varieties, in contrast to what many environmentalists believe, benefitted the environment. Increases in the area under high-yielding varieties has tended to reduce the amount of land devoted to agriculture – "improvements in the productivity of food crops actually lead to intensification of agriculture on a smaller land area, preventing expansion on the extensive margin".

Their results suggest at least three lessons. First, there is huge potential for improving living standards in developing countries through new crop varieties – especially in many African countries, where adoption is far from universal, and agriculture is still an important sector. Second, new biological technologies are available to increase productivity of some crops, by increasing yields and reducing costs – for example, disease-resistant varieties that minimise the need for costly pesticides. Third, "technology continues to have a huge potential for

improving incomes in the poorest places on our planet". **Indeed, the authors' results suggest that the investments in the development of high-yielding crops have been "the most successful form of foreign aid to developing countries in the past half century".**

By itself, land reform in SA will not be enough to improve living standards, as the rest of the continent's poor agricultural productivity attests to. Large investments in developing new technologies is needed – universities, research institutes and the research capacity of state-owned enterprises, with the help of foreign donors – to improve the productivity of our farms, factories and fibre-optic networks.

"Whoever makes two blades of grass to grow upon a spot of ground where only one grew before," writes Jonathan Swift in *Gulliver's Travels*, "would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together."

Technology and scientific advancement is often last in line when economic policies are discussed in SA and the rest of the continent. But technology that can "make two blades of grass to grow upon a spot of ground where only one grew before" – or can make South Africans produce more with less – is the only way we can escape the stasis of the last decade, regardless of what South African politicians repeatedly promise. ■

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