



Agriculture

Agricultural reform elsewhere in the world: Lessons for Africa?

Alize le Roux and Jakkie Cilliers

Last updated 04 June 2024 using IFs 7.84

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The first 20 years of China's agricultural revolution, which improved productivity on smallholder farms through institutional incentivisation and access to better seeds and farming practices, hold many lessons for Africa.

In the 1970s and 1980s, Deng Xiaoping used the household responsibility approach to transform the domestic agricultural sector in China. The reforms contracted individual households instead of collectives to farm. This new responsibility and other market-related reforms improved productivity by 20% above collective era **output**.

The average yield nearly tripled between 1970 and 2013 and was a catalyst in the economic growth enjoyed by the country during those decades. The available calories per person increased by almost 70%, and there were fewer than 2 million malnourished children in 2015, compared to more than 22 million in 1987.

The African experience is that different families farm small patches of land, relying on unproductive, often traditional, practices. This is similar to the situation in China several decades ago. By working with the individual farmer and focusing on improved smallholder productivity, **China transformed** its agricultural sector and fed its rapidly growing population. Today, electronic land-use transfer systems contribute to continued productivity, with farmers able to lease their land to others, creating larger and potentially more productive farms.

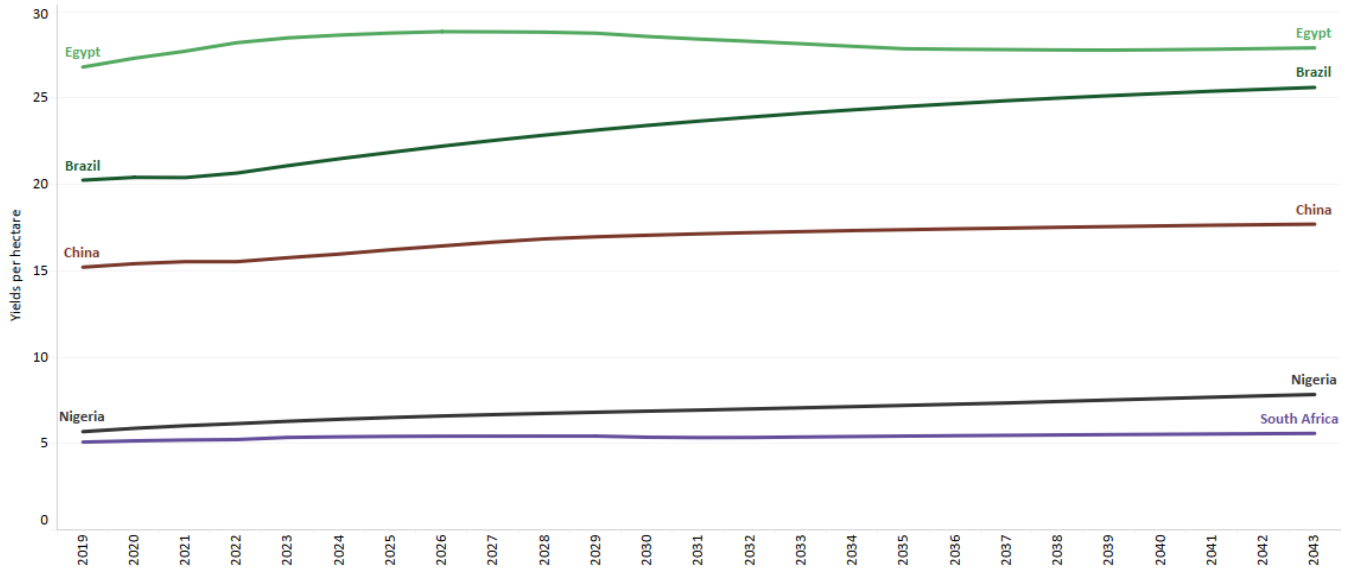
Brazil also enjoyed rapid improvements in agricultural production in the decade between 2000 and 2010. Although the country has traditionally been a net food exporter, it has improved that position by nearly seven percentage points. Between 1980 and 2000, Brazil doubled average yields per hectare despite crop land decreasing by about 4 million hectares.

Brazil's agricultural sector has grown in absolute terms and diversified but, like China, only achieved that progress once it had graduated to an upper middle-income status. Today, Brazil is the world's largest exporter of sugar and coffee, second only to the United States in soybean exports and third to the United States and Argentina in maize **exports**. The genetic tailoring of seeds and plants had an essential role in these changes.

Brazil is now at a stage in development where it is moving beyond agricultural production for food security. The country exported approximately 12% more food than it consumed in 2018. It has begun to embrace a 'forest, agriculture and livestock integration' approach to farming that is widely acknowledged to benefit both agricultural production and environmental sustainability. But it is achieving many of these goals at the much greater cost of environmental degradation, as farmland steadily encroaches on the vast Amazon forests that serve as a significant global carbon sink.

In Africa, Egypt also managed to double yields between 1970 and 2000. A series of targeted strategies and policies, including large-scale land reclamation projects, expansion of the Nile irrigation system, the introduction of high-yield crop varieties, improved fertiliser use, the uptake of modern farming technologies and increased investment in agricultural research, contributed to the growth and improved yields. Chart 5 compares yields per hectare for China and Brazil and Africa's top three crop producers, Nigeria, South Africa and Egypt.

Chart 5: Yield per hectare: China, Brazil, Nigeria, South Africa and Egypt: 2019-2043



Source: IFs 7.84 initialising from FAO Food Balance Sheets

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Cite this research

Alize le Roux and Jakkie Cilliers (2024) Agriculture. Published online at futures.issafrica.org. Retrieved from <https://futures.issafrica.org/thematic/04-agriculture/> [Online Resource] Updated 04 June 2024.

About the authors

Ms Alize le Roux joined the AFI in May 2021 as a senior researcher. Before joining the ISS, she worked as a principal geo-informatics researcher at the CSIR, supporting various local and national policy- and decision-makers with long-term planning support. Alize has 14 years of experience in spatial data analysis, disaster risk reduction and urban and regional modelling. She has a master's degree in geographical sciences from the University of Utrecht, specialising in multi-hazard risk assessments and spatial decision support systems.

Dr Jakkie Cilliers is the ISS's founder and former executive director. He currently serves as chair of the ISS Board of Trustees and head of the African Futures and Innovation (AFI) programme at the Pretoria office of the Institute. His 2017 best-seller *Fate of the Nation* addresses South Africa's futures from political, economic and social perspectives. His three most recent books, *Africa First! Igniting a Growth Revolution* (March 2020), *The Future of Africa: Challenges and Opportunities* (April 2021), and *Africa Tomorrow: Pathways to Prosperity* (June 2022) take a rigorous look at the continent as a whole.

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