



**Fig. 4** Estimated year coefficients for employment of different skill types

Rodrik D, Premature deindustrialisation, *Journal of Economic Growth*, 21, 2016, p. 19.

The social effects of joblessness are devastating. Demographic modelling indicates that Africa's population is growing rapidly. For optimists this means a dividend of young producers and consumers. For pessimists, it means a growing problem of youth unemployment colliding with poor governance and weak institutions.

New technologies threaten to amplify current inequalities, both within and between countries. Mining typically a large employer may become more characterised by keyhole than open heart surgery, to borrow a medical metaphor. That means driverless trucks and robots, all fully digitised, conducting non-invasive mining. A large proportion of the nearly 500 000 people employed in South African mining alone may stand to lose their jobs.

Rising inequality and in-

come stagnation are also socially problematic. Unequal societies tend to be more violent, have higher incarceration rates, and have lower levels of life expectancy than their more equal counterparts.

New technologies may further concentrate benefits and value in the hands of the already wealthy. Those who didn't benefit from earlier industrialisation risk being left even further behind.

So how can African countries ensure that they harness this revolution while mitigating its risks?

#### Looking ahead

African countries should avoid a proclivity back towards the import substitution industrialisation programmes of early independence. The answer to premature deindustrialisation is not to protect infant industries and manufacture expensively at home. Industrialisation in the 21st century has a totally differ-

ent ambience. In policy terms, governments need to employ systems thinking, operating in concert rather than in silos.

Rapidly improving access to electricity should be a key policy priority. Governments should view energy security as a function of investment in renewables and the foundation for future growth.

More generically, African governments should be proactive in adopting new technologies. To do so they must stand firm against potential political losers who form barriers to economic development. It pays in the long-run to craft inclusive institutions that promote widespread innovation.

There are serious advantages to being a first mover in technology. Governments should be building clear strategies that entail all the benefits of a fourth industrial revolution. If not, they risk being left behind.