

When Intelligence Becomes Cheap but Opportunity Remains Scarce: AI, Inequality and South Africa's Productivity Problem

1. Introduction: AI enters an unequal economy

South Africa's artificial-intelligence problem begins before anybody loses a job to a machine. It begins when two equally qualified graduates acquire different economic value from the same qualification because one has fibre, a laptop, exposure to generative AI and professional networks, while the other has a smartphone, expensive data and internet access to digital infrastructure. AI can widen inequality without firing either graduate. It can simply make the already-connected graduate faster at research, applications, data analysis and entrepreneurship while the other remains formally qualified but less able to convert education into income.

That distinction matters in an economy where the official unemployment rate reached 33.6 percent in the second quarter of 2026, and 8.5 million people were unemployed (Statistics South Africa, 2026a). South Africa therefore cannot import the assumptions of AI strategies designed for economies close to full employment. Labour-saving technology has different welfare consequences when millions of people are already waiting outside the labour market. The central question is not whether South Africa should adopt AI, but whether adoption expands the economy's productive frontier while creating new routes into work, or merely allows existing firms to produce more with fewer entrants.

This essay argues that South Africa should redesign education, industrial policy and fiscal incentives around the distribution of AI capability: the ability to convert artificial intelligence into higher productivity, employment, entrepreneurship or income. It proposes four linked ideas. First, policy should measure effective human capital rather than qualifications alone. Second, public AI investment should be scarcity-weighted, prioritising applications that expand socially scarce capabilities such as health, teaching, engineering and municipal expertise. Third, government should lower the fixed cost of AI-enabled entrepreneurship for unemployed graduates and rural communities. Fourth, fiscal incentives should reward augmentation and market expansion rather than payroll reduction. The objective is not technological equality for its own sake. It is to prevent South Africa from becoming more productive on paper while becoming less mobile in practice.

2. From the digital divide to the AI capability divide

South Africa is closing one digital divide while risking another. Statistics South Africa's 2024 General Household Survey shows that 27.2 per cent of metropolitan households had internet access at home, compared with only 2.7 per cent of rural households. In rural KwaZulu-Natal the figure was 0.4 per cent. Mobile internet access was much wider—71.1 per cent among rural households—but a mobile connection is not economically equivalent to reliable home broadband and a computer for coding, data analysis, long-form research or repeated use of advanced AI tools (Statistics South Africa, 2025).

The relevant inequality is therefore no longer simply connected versus unconnected. It is productive access versus nominal access. A student may technically have internet access while writing assignments on a phone, rationing data and travelling to find stable connectivity. Another student can experiment continuously with AI, download datasets, run models, attend online courses and apply for jobs from a quiet room. Both are counted as connected; only one may be accumulating AI capability at high speed.

A useful way to think about this is effective human capital. Formal human capital may be represented by qualifications and accumulated knowledge, but its economic value increasingly depends on complementary inputs: qualification $\times$ AI capability $\times$ infrastructure $\times$ opportunity. If any component is close to zero, a degree can remain underutilised. This is especially important for marginalised graduates. A trans graduate with an Honours degree may possess the same formal skills as peers while also navigating discrimination, workplace safety, weaker networks or uncertainty about institutional inclusion. AI can reduce some barriers by lowering the cost of research, business administration, remote work and market access. Yet if productive AI access itself follows income and geography, technology can reproduce the exclusion it appears to solve.

Treasury should therefore support an annual AI Capability Index by municipality, measuring device quality, reliable broadband, electricity, AI literacy, access to advanced tools, training and the ability to convert those inputs into employment or enterprise. This would be more useful than celebrating connectivity rates alone. Fiscal equalisation can then target places where the capability gap is largest.

3. The missing first rung: graduate unemployment in an AI labour market

Generative AI does not need to eliminate entire occupations to disrupt employment. It can remove the junior tasks through which people traditionally enter them. Entry-level analysts summarise reports; junior accountants reconcile information; paralegals search documents; graduate researchers review literature; communications assistants prepare first drafts. These are precisely the kinds of structured cognitive tasks that generative systems increasingly perform. The risk is a “missing first rung”: senior professionals remain valuable because they exercise judgement, hold relationships and bear responsibility, while firms reduce the number of junior workers who would previously have learned by performing routine tasks.

This is particularly dangerous in South Africa because the queue for the first rung is already long. The economic problem is not simply displacement of employed workers; it is reduced absorption of people who have never entered formal employment. AI may therefore create an insider–outsider effect: insiders become more productive through complementarity, while outsiders face fewer vacancies because the productivity of existing teams rises.

Education policy must respond by teaching complementarity rather than software fashion. Schools need stronger literacy, numeracy, statistics, source verification and critical reasoning. Universities should assess students less on producing information and more on interrogating it: identify assumptions, test an AI-generated claim against data, calculate distributional effects, explain uncertainty and defend a judgement orally. When answers become

cheap, verification becomes scarce. Critical thinking therefore becomes an economic input, not an educational slogan.

At post-school level, every publicly supported AI programme should contain a paid entry pathway. Firms receiving AI-related incentives should offer AI apprenticeships in which graduates learn to supervise, verify and apply AI in a sector rather than compete with it on routine output. South Africa should deliberately preserve the learning function of entry-level work even as the task composition of that work changes.

4. Make scarce skills less scarce

The strongest case for AI is not necessarily where automation saves the most wages. It may be where augmentation expands the effective supply of scarce expertise. A rural clinic does not benefit because an algorithm can imitate a doctor; it benefits if a doctor spends less time on administration, retrieves information faster, triages more effectively and devotes scarce human judgement to more patients. The same principle applies to teachers, engineers, artisans, agricultural extension officers and municipal finance specialists.

This suggests a scarcity-weighted AI rule for industrial and public investment. Government should rank some AI applications by their social marginal product: how much additional socially valuable capacity does one rand of technology unlock? An advertising optimisation tool may have a high private return. A multilingual clinical support system that helps scarce health professionals serve remote communities may have a larger social return. Industrial policy should recognise the difference.

South Africa can operationalise this through a Digital Professional Service Corps. Newly qualified professionals could receive AI tools, supervised placements and financial incentives to spend 12 to 24 months in underserved districts. An economist could support several municipalities with budgeting and data analysis; an agricultural graduate could advise many small farmers through digital channels; a teacher could use AI to adapt materials across different learning levels and languages. Participation should be voluntary and linked to bursary support, professional credits or tax benefits. AI would then reduce the economic penalty of distance instead of concentrating expertise further in Johannesburg, Cape Town and Pretoria.

The long-run gain is larger than service delivery. Rural institutions become sites where graduates learn to solve real problems, local datasets improve and technology suppliers are forced to design for South African conditions. That creates demand for locally relevant innovation rather than simply importing foreign software.

5. Entrepreneurship: convert unemployed human capital into productive capital

AI also changes the economics of starting a firm. Knowledge businesses traditionally face fixed costs: research, bookkeeping, marketing, design, administration, customer support and basic legal work. Generative AI can reduce several of these costs, allowing one skilled person to operate with capabilities that previously required a small team. For a country that cannot rely on the formal sector to absorb every graduate, this matters.

An unemployed Economics Honours graduate, for example, could use AI as a complement to build a micro-consultancy in market research, local economic development, data cleaning, financial modelling or SME business intelligence. The economist remains responsible for assumptions, data quality and interpretation; AI reduces the cost of producing and testing work. This is not a romantic claim that every unemployed person should become an entrepreneur. It is an argument that technology has lowered the minimum efficient scale of some knowledge enterprises, and policy should exploit that change.

Government should create AI Enterprise Starter Accounts for qualifying unemployed graduates and TVET graduates. Instead of a once-off cash grant, the account would provide a time-limited bundle: a capable device, connectivity, approved AI/cloud credits, accredited training, CIPC and SARS support, bookkeeping tools, mentorship and access to procurement or private-market opportunities. Providers should be paid partly on outcomes—revenue generated, enterprise survival, tax registration and jobs created—rather than the number of certificates issued.

This proposal also has a spatial logic. Without targeted access, AI-enabled entrepreneurship will be captured first by people who already possess broadband, capital and networks. The state should therefore place AI enterprise hubs in TVET colleges, libraries and community facilities in low-capability districts. Productive infrastructure should follow people, rather than requiring every ambitious graduate to migrate to a metropolitan centre.

6. Industrial competitiveness: South Africa must compete through augmented labour

AI changes South Africa's international competitiveness because the country competes not only against workers elsewhere, but increasingly against capital embodied in software. This is especially important for global business services and business-process outsourcing (BPO), where South Africa has built an export-oriented employment base. In 2026, industry reporting warned that AI could automate a significant share of BPO activity, while other evidence showed the sector shifting towards more complex services in which South African professionals combine technology with judgement and customer expertise (Business Day, 2026a; PwC South Africa, 2026).

The strategic response cannot be to preserve competitiveness through cheap labour. Software will eventually beat workers in a pure cost competition over repetitive tasks. South Africa needs an augmented-labour advantage: skilled but relatively cost-competitive workers using AI to provide higher-value services in English and other languages, supported by time-zone proximity to European markets and sector knowledge in finance, insurance, health and professional services.

Industrial incentives should therefore reward firms that move workers up the value chain. A BPO firm that introduces AI and retrains agents for complex claims, compliance, sales or technical support should receive more support than a firm that uses the same technology only to cut headcount. Manufacturing policy should apply the same principle to predictive maintenance, quality control and production planning. The test is whether AI expands output, exports and capability, not whether a company can show that it purchased software.

This also protects South Africa from a dangerous middle-income squeeze. The country cannot outspend frontier economies on foundation models, and it should not try to outcompete poorer economies through lower wages. Its comparative opportunity lies in combining existing industrial capabilities, professional skills, multilingual labour and AI. Industrial policy should be designed around that combination.

7. Fiscal policy: pay for additionality, not automation

Fiscal incentives should follow a simple principle: the state should not subsidise technology merely because it is new. It should subsidise additional social returns. South Africa already has an instrument that can be adapted. The Employment Tax Incentive (ETI) reduces the cost of employing qualifying young workers and is explicitly intended to increase employment of young work-seekers. SARS also imposes penalties where employers displace workers to access the incentive or claim it while violating applicable wage requirements (SARS, 2026).

Treasury could pilot an AI-Augmentation ETI. A firm would receive an enhanced credit for hiring a qualifying young person into an AI-exposed occupation where the worker completes accredited AI training and is retained for a minimum period. The credit should be larger where the firm demonstrates that AI raised output or service quality without eliminating the entry position. This turns the tax system into a mechanism for preserving the first rung while changing what workers learn on it.

The opposite rule should apply to publicly subsidised automation. Where a firm receives a substantial AI-related tax allowance or grant and soon afterwards undertakes technology-related retrenchments, part of the subsidy should be clawed back unless the firm finances redeployment or transition support. This is not a robot tax. A general tax on automation could discourage productivity-enhancing investment. A clawback simply prevents taxpayers from financing capital substitution while workers and the fiscus absorb all the transition costs.

The proposal must remain fiscally disciplined. The 2026 Budget emphasises fiscal sustainability, growth and service delivery, and Treasury has acknowledged weaknesses in the outcomes produced by parts of the skills-development system (National Treasury, 2026). New AI programmes should therefore reallocate poorly performing training and incentive expenditure before demanding large new appropriations. Every programme should have a sunset clause, published evaluation and measurable additionality.

8. Immigration, informality and the politics of scarce jobs

AI will enter a labour market already politically divided over who gets access to scarce jobs. In 2026, March and March mobilised thousands around undocumented immigration and announced recurring Thursday protests (EWN, 2026). The movement is economically relevant not because protest claims should automatically be accepted as evidence, but because it reveals the politics produced by prolonged labour-market scarcity.

The legal issue must be stated precisely. South African law prohibits employers from unlawfully employing foreign nationals, while the Employment Services Amendment Bill introduced in 2026 seeks stronger regulation

and enforcement of foreign-national employment consistent with immigration law and provides for labour-migration regulation, including possible sector-specific quotas (Parliament of South Africa, 2026). Employers who evade work-authorisation, minimum-wage, PAYE or UIF obligations can gain an unlawful cost advantage over compliant employers and workers. That is an enforcement and informality problem.

It is not economically sound, however, to convert that problem into the claim that migrants as a whole cause South African unemployment or do not contribute fiscally. Earlier OECD/ILO and World Bank research found no simple overall displacement effect and identified positive economic contributions from immigration (OECD/ILO, 2018; World Bank, 2018). A serious economic essay should distinguish lawful migration, scarce-skill migration and unlawful employment rather than collapsing them into one category.

The connection to AI is employer arbitrage. Firms should not be allowed to choose among three socially damaging ways of lowering labour costs: unlawfully underpaid labour, unlawfully employed labour, or taxpayer-subsidised automation that simply replaces workers. Eligibility for AI fiscal incentives should therefore require verified compliance with PAYE, UIF, minimum-wage and work-authorisation obligations. South Africa can enforce immigration law and protect local employment without pretending that migration control is a productivity strategy. There is also a warning in the politics of March and March. If AI productivity gains accrue narrowly while unemployment remains extreme, technological change can become another object of scarcity politics: workers against machines, graduates against firms, rural communities against metropolitan advantage. Broad diffusion of AI capability is therefore not only distributional policy. It is part of maintaining political legitimacy for innovation.

9. Governance: South Africa must learn to verify before it automates

South Africa's own AI-policy experience provides a caution. Cabinet approved a draft national AI policy for public comment in March 2026, but the responsible minister withdrew it after fictitious sources were found in its reference list; Cabinet subsequently approved the withdrawal so that the policy could be reworked (SAnews, 2026; The Presidency, 2026). The episode is almost too perfect a warning: institutions can adopt AI-generated outputs faster than they develop the capacity to verify them.

This should shape both education and state administration. Public servants, lecturers, procurement officials and regulators need verification capability before government automates high-stakes decisions. Procurement contracts for AI should disclose vendors, costs, performance indicators, training commitments and renewal decisions. No second tranche of a major incentive should be paid where promised employment, training or productivity outcomes cannot be demonstrated.

Treasury should establish a small cross-departmental AI Productivity Observatory using anonymised administrative data to evaluate whether supported investments change productivity, wages, employment, exports and firm survival. The Observatory should publish failures as well as successes. South Africa has no fiscal space

for AI theatre: expensive pilots, impressive launches and training certificates that cannot demonstrate economic additionality.

10. A sequenced strategy: equalise capability, then scale productivity

The short-run strategy should focus on diffusion and protection of entry pathways. Over the next two years, government should map AI capability by municipality; pilot AI Capability and Enterprise Starter Accounts in low-access districts; introduce paid AI apprenticeships; launch scarcity-weighted pilots in health, education and municipal services; and add an AI-Augmentation ETI for young entrants. All AI-related fiscal support should be conditional on labour, tax and immigration compliance.

The medium-term strategy should reshape institutions. TVET colleges should become applied AI centres linked to regional industries. University assessment should move towards verification, causal reasoning and oral defence. Industrial incentives should favour firms that use AI to expand exports, local capability and higher-value employment. Public procurement should create demand for South African solutions to local problems, including African-language applications and low-bandwidth systems.

In the long run, success should be measured by whether AI raises total factor productivity without closing pathways into the labour market. The relevant indicators are not the number of AI strategies, subscriptions or training certificates. They are productivity growth, new-firm survival, employment transitions, wage progression, export complexity, rural access to scarce services and the distribution of AI capability across places and groups.

11. Conclusion: when intelligence becomes cheap, opportunity cannot remain scarce

South Africa does not primarily suffer from a shortage of intelligence. It suffers from a shortage of opportunities through which human capability becomes productive. AI can either relax that constraint or harden it. If the technology makes already-employed professionals more productive while removing entry-level jobs, or gives metropolitan graduates tools that rural graduates cannot meaningfully access, measured productivity can improve while economic mobility deteriorates.

A better outcome is possible. AI can increase the effective supply of scarce doctors, teachers and engineers; lower the fixed cost of entrepreneurship; extend professional capability into rural communities; strengthen globally traded services; and allow qualified but excluded graduates to convert knowledge into marketable output. But these gains do not emerge automatically. They depend on infrastructure, skills, institutions and incentives.

Education policy should therefore teach people to complement and interrogate machines rather than compete with them on routine output. Industrial policy should direct AI towards socially scarce capabilities and sectors where augmented South African labour can compete globally. Fiscal policy should pay for additional productivity, entry pathways and diffusion rather than technology expenditure itself. Labour and immigration enforcement should

prevent firms from building competitiveness on unlawful cost avoidance, while avoiding economically unsupported scapegoating.

Return, finally, to the two equally qualified graduates. If AI multiplies the income and productivity of the graduate who already had infrastructure, networks and opportunity while leaving the other more efficiently excluded, South Africa will have achieved technological adoption without economic transformation. The countries that benefit most from AI will not necessarily be those with the largest models. They will be those that convert machine intelligence into widely distributed productive capability. For South Africa, the principle should be uncompromising: when intelligence becomes cheap, opportunity cannot remain scarce.

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