

Performing without learning: AI, young workers and entry work in South Africa

1. Introduction

In the second quarter of 2026, 8.5 million South Africans were unemployed, with an official unemployment rate of 33.6%. Among young people aged 15 to 34, the rate was 47.4% (Statistics South Africa: 2026). As South Africa enters the age of artificial intelligence (AI) with a severe employment problem, the question is not simply whether AI will raise productivity somewhere in the economy. It is whether AI will create productive work here and help young people acquire the skills to enter and remain in it.

Much of the debate around AI concerns the jobs that could be replaced through automation. Equally important, however, is the work it may bring into existence. Historically, technologies have changed the activities through which people earn a living, but the opportunities they create need not arise in the same places, or reach the same workers, as the activities they displace. South Africa therefore needs to consider both its use of AI and its capacity to develop useful applications and new work around it.

I argue that policy should support the development of technologies that enable valuable human work in South Africa, while building routes through which more people can participate. This requires a clearer purpose than encouraging AI adoption wherever it is technically possible. The essay explores this argument through the economics and geography of new tasks, examines the skills they may require, and considers how industrial policy, education and targeted public spending can connect technological progress with employment creation.

2. How technology changes the demand for work

A job consists of several tasks, only some of which a machine may be able to perform. Acemoglu and Restrepo (2019) distinguish automation, which transfers existing tasks from people to capital, from the creation of new tasks in which people have a productive advantage. Automation can reduce labour demand directly, although lower costs may expand production and increase employment elsewhere. New tasks provide a further source of demand by introducing activities that require a human contribution. These effects do not always balance out, and even substantial productivity growth does not guarantee that displaced workers will find comparable employment elsewhere.

When technological improvements make machines more productive in tasks they already perform, this deepening of automation operates at the intensive margin, without directly displacing labour from further activities. The creation of new labour-intensive tasks changes the allocation of labour in the opposite direction to displacement by introducing activities in which people have a comparative advantage. Through this reinstatement effect, new tasks increase labour demand and, under the framework's assumptions, raise the labour share. They can therefore counterbalance continuing automation, although maintaining a stable share requires a sufficient pace of task creation. Capital accumulation and deepening may also affect the share, depending on how readily capital and labour substitute for one another. New tasks are distinctive because they expand labour's role in production itself, beyond any increase in demand for the activities left after automation (Acemoglu and Restrepo: 2018a; 2018b).

By 2018, a majority of American employment was in occupational specialties introduced since 1940, according to the estimates of Autor et al. (2024). Their analysis associates the emergence of new work

with innovations that complemented occupations and with growing demand for their output. Over time, employment came to depend on activities that earlier generations could not have entered. For South Africa, however, the American experience leaves open the question of where comparable opportunities will emerge and whether they will be accessible to workers whose existing tasks disappear.

3. Where can new work emerge

In his study of American cities, Lin (2011) finds that new work emerged more frequently where educated workers and a variety of industries were already concentrated. Firms in such places can draw on technical expertise alongside knowledge of different markets and production processes, making it easier to find commercially useful applications for an invention. Although this evidence does not establish how employment gains will be distributed between countries, it suggests that adopting a technology and developing new activities around it depend on different capabilities.

South Africa will adopt much of its AI from countries where those development capabilities are already established. Institutions in the United States produced 40 notable models in 2024, compared with 15 in China and three in Europe (Stanford HAI: 2025). The concentration of model development places much of the associated research and engineering abroad but leaves uncertainty about the location of services built around those models. For example, firms serving South African customers may still find opportunities where an application requires knowledge of local languages, professional practices or institutions.

Lelapa AI's Vulavula service offers speech and translation tools for African languages, providing components around which firms could develop applications for local users (Lelapa AI: n.d.). Although these tools may replace some existing language work, using them in a reliable service could also require expertise in how people communicate and how the service operates. A system used in a multilingual setting, for example, may need to handle speakers moving between languages and expressions whose meaning depends on context. Assessing its suitability would require people who understand those usages and can judge the consequences of errors in the setting concerned. The scope for human work would therefore depend partly on the expertise needed to adapt and evaluate an application for its intended users.

Language specialists and domain experts could develop test cases, investigate failures and work with developers to improve these systems. A business able to organise and sell that expertise would bring local knowledge into the provision of AI services, potentially serving customers abroad as well as at home. Whether this constitutes new-task creation would depend on the responsibilities involved: simply expanding an existing testing service would not, by itself, establish a reinstatement effect. Its employment prospects would in either case depend on paying customers and a continuing need for the workers' contribution.

Only considering domestic ownership of firms building tools around AI would therefore be a poor basis for deciding which developments deserve support. A South African company may automate local work, while a firm using a foreign model may create activities that require local expertise. Policy needs to examine what value they produce and where the work is performed, allowing imported technology to contribute to domestic development, and at the same time not assuming that adoption will automatically generate employment.

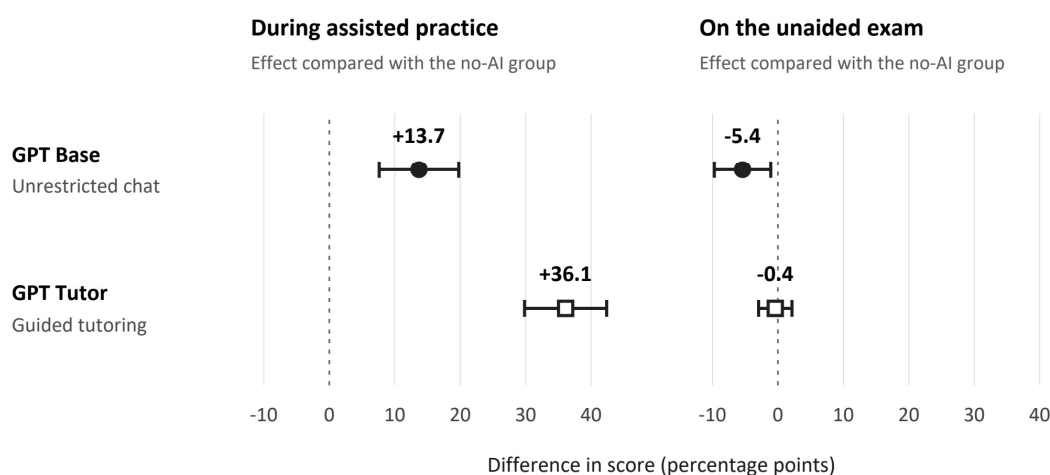
4. Skills and access to emerging work

Preparing people to perform the emerging tasks is part of the employment challenge, particularly where young entrants have had little opportunity to develop the required expertise.

The PIRLS 2021 finding that approximately 81% of South African Grade 4 learners did not reach the low international reading benchmark suggests that many future entrants to occupational training may lack the reading skills on which specialised learning depends (Department of Basic Education: 2023). Cunha and Heckman's (2007) account of skill formation explains that this matters beyond primary school because skills acquired earlier increase the returns to subsequent learning. Occupational programmes must therefore accommodate differences in preparation or training, including adult literacy and numeracy support. This also emphasises that a strong educational foundation will only become more important with the advance of AI and school reforms to strengthen this foundation is essential.

When Bastani et al. (2025) tested two AI tools in a Turkish school, both tools improved practice scores, but neither produced a statistically detectable improvement on the subsequent unaided examination. The difference between assisted performance and independent understanding is shown in Figure 1.

Figure 1: Better assisted performance does not always result in independent capability



Source: Author's chart from Bastani et al. (2025), Table 1. Points show adjusted effects versus the no-AI control; whiskers are approximate 95% intervals calculated as coefficient $\pm$ 1.96 classroom-clustered standard errors. Scores are expressed in percentage points.

Although the guided tutor produced a much larger practice gain, its unaided examination estimate was close to zero, while unrestricted usage of the AI tool during practice reduced unaided scores. The tutor combined hints with teacher-provided solutions and guidance, so the results cannot be attributed to hints alone.

In Nigeria, a six-week school programme involving AI tutoring, teacher guidance and additional lessons improved a combined assessment by 0.31 standard deviations, although its design did not separate AI's contribution from equally intensive conventional instruction (De Simone et al.: 2025). In a customer-support workplace, AI increased issues resolved per hour by 15% on average, with larger benefits for less experienced workers (Brynjolfsson, Li and Raymond: 2025). These findings justify investigating how AI can assist novices while retaining independent assessment of what they learn.

Occupational training should incorporate this distinction by giving learners opportunities to attempt unfamiliar cases, examine errors in machine-generated work and explain their decisions before relying on an AI tool. Delayed unaided assessments would test retained understanding, while supervised assessments with AI would establish whether learners can use it competently in their work. The

appropriate balance would vary across occupations and should be evaluated through the responsibilities for which people are being prepared.

5. Industrial policy and the creation of useful work

Preparing young people to work with AI is one part of the employment challenge. South Africa also needs to consider how firms can develop new products and services that give people useful work to do. Acemoglu and Restrepo explain that the kind of technological change matters. Automation transfers tasks from workers to machines, while the creation of new tasks can increase demand for labour and counter the decline in its share of income. As the discussion of geography showed, however, these opportunities do not necessarily emerge where workers have been displaced. Industrial policy should therefore help build South Africa's capacity to develop new work around AI. Public funding would be justified where specific obstacles prevent firms from undertaking development whose benefits extend beyond their own businesses.

One such obstacle arises when a firm bears the cost of developing knowledge that its competitors can also use. Rodrik (2004) explains how this can discourage investment in new activities, even when their wider benefits would justify the expense. A business developing an African-language AI service, for example, may need reliable testing resources that would also benefit other developers. If each firm waits for another to finance those resources, promising applications may remain undeveloped. Public support could help meet this shared need, allowing firms to build services that would otherwise be difficult to establish.

The Technology Innovation Agency's support for proof-of-concept work, piloting and market validation could be a potential basis for a limited programme of this kind (TIA: 2026). Developers, researchers and prospective customers could jointly propose applications, explaining what new work people would undertake and why customers would pay for the service. For a multilingual evaluation service, to use the same example, an initial grant could help create a shared collection of speech recordings and verified transcriptions, allowing several firms to assess how accurately their systems handle local languages and speakers switching between them. Further funding would depend on a working application and evidence of customer demand. Firms could use imported models while developing the expertise and services locally, so that public support contributes to productive capabilities in South Africa.

The programme's success would depend on whether it helps establish useful work that can continue after assistance ends. Evaluation should examine the tasks created, the income they generate and the knowledge made available to other businesses, while accounting for any displacement of existing activity. Where feasible, comparisons with eligible unsupported projects would help establish what the funding adds.

6. Fiscal support for entry into new work around AI

Supporting new tasks around AI will have limited value for unemployed young people if firms undertake those activities only by recruiting experienced specialists. The reinstatement effect concerns the expansion of labour's role in production, but it does not determine who gains access to the resulting work. Grants could potentially help firms and training providers prepare inexperienced entrants for these responsibilities where barriers to investment prevent worthwhile learning. In the multilingual evaluation service discussed earlier, entrants might learn to construct tests for language switching, investigate failures and assess their consequences in particular settings.

Employers would pay for productive work and meet part of the preparation costs, while grants could contribute to supervised practice, shared teaching materials and independent assessment. Public contributions would be justified where benefits extend beyond the firm, for example through instruction that other providers can use or skills that workers can carry between employers. Development grants, as discussed under Section 5, would help establish whether an AI service is technically and commercially viable. This complementary support would help young entrants acquire the capabilities needed to perform its new tasks.

Since better performance with AI does not necessarily demonstrate independent understanding and a growth in individual capabilities, funded preparation should give participants opportunities to investigate errors, explain decisions and judge when an output requires further scrutiny. Assessment would establish whether they can take responsibility for the work on which the service depends. Public support would thus be tied to acquiring expertise for identifiable new human tasks.

A pilot of such a programme would require evaluation of the tasks participants perform, their earnings and their progression after support ends, while examining whether subsidised recruitment displaces existing workers. Fiscal support could then connect task creation with wider participation, without assuming that either AI adoption or training alone will generate lasting employment.

7. Conclusion

The employment consequences of AI will depend partly on whether its development creates valuable activities in which people retain a productive role. As Acemoglu and Restrepo's framework explains, the growth in output that follows automation does not necessarily restore labour's share of income, while new labour-intensive tasks can counter the displacement effect introduced by automation. South Africa therefore needs both the capacity to develop useful applications and routes through which young people can enter the work that emerges around them. Limited development grants and matched support for entry into new tasks could address specific obstacles to these processes, with continued funding dependent on evidence of useful services and sustained opportunities for workers.

The reach of these opportunities will also depend on the quality of basic education. Literacy, numeracy and the ability to reason provide the foundations on which people acquire specialised expertise, assess unfamiliar information and adapt as their work changes. Without stronger foundations, even successful efforts to create new tasks around AI may benefit mainly those already equipped to learn them. Improving basic education must therefore remain central to South Africa's response to AI, alongside more immediate support for young people entering employment. The aim should be to develop a capable workforce that can use the technology with understanding and contribute to the new activities it makes possible.

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