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South Africa

SDG PUSH FRAMEWORK

Unlocking New Pathways to SDG Acceleration

2024

Acknowledgements

The SDG Push Framework **is led by the government** as part of their journey of developing roadmaps to achieve the SDGs in the country through a structured approach to identifying the accelerators.

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South Africa SDG Push Framework: Unlocking New Pathways to SDG Acceleration

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This initiative is developed by the UNDP SDG Integration team, in cooperation with Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), on behalf of Federal Ministry for Economic Cooperation and Development (BMZ) in support of countries to recover forward.

Acronyms

BAU	business-as-usual
CGE	Computable General Equilibrium
ERRP	Economic Reconstruction and Recovery Plan
GDP	Gross domestic product
INFF	Integrated National Financing Framework
MS	micro-simulation
NDP	National Development Plan
NPC	National Planning Commission
SADC	Southern African Development Community
SDG	Sustainable Development Goal
UNDP	United Nations Development Program

1. Executive Summary

Despite making significant strides in development progress, South Africa faces the persistent triple development challenges of poverty, inequality, and unemployment.

Structural challenges and weak growth have undermined progress toward reducing poverty, heightened by the COVID-19 pandemic. Unemployment reached a record high of 34.9 percent in 2021, and remained stubbornly high at 32.6 percent in 2023.[1] Inequality and poverty have remained high in the post-apartheid era, with a Gini coefficient estimated at 0.63 and poverty headcount ratios at 40.0 percent and 55.5 percent for lower- and upper-bound poverty lines, respectively.[2] Since the global recession of 2008, South Africa has experienced slower economic growth, with an annual economic growth rate averaging 1.1 percent over the 2009–2021 period.[3]

South Africa is committed to tackling these development challenges through both the National Development Plan (NDP), the country's blueprint for development, and the United Nations Sustainable Development Goals (SDGs). The Government's Economic Reconstruction and Recovery Plan (ERRP) is the main government policy framework for addressing the triple development challenges through economic growth, investment, and redistribution.

Despite these commitments and frameworks, South Africa will likely fall short of its development goals and targets if a business-as-usual (BAU) approach continues.

The Government needs to design policy packages for strong economic growth while reducing unemployment, inequality, and poverty, paying careful attention to the implications of such interventions on public finances.

To launch this work, the United Nations Development Programme's (UNDP), together with Government counterparts, piloted the SDG Push Framework to identify plausible pathways to tackle the persistent triple development challenges.

The SDG Push Framework is a tool to enable Member States to plan and deliver SDG breakthroughs in a variety of development contexts. This Framework comprises: scoping, acceleration dialogues, economic modelling, sustainable financing, and acceleration pathways. These components are essential in identifying development gaps, challenges, and drivers, and in developing potential interventions to address each challenge, and to systematically assess the costs, interlinkages and trade-offs related to the acceleration plan.

Based on the scoping exercise and acceleration dialogue outcomes, a combination of policy scenarios was tested. These scenarios included accelerating skills formation, fostering growth in the services and industry sectors, and implementing poverty-alleviating social grants.

The grants were tested under two scenarios: unconditional and conditional, with external funding assumed for the additional grant expenditure. A baseline BAU scenario was established, and it projected that the current trajectory of low growth rates is insufficient to achieve key SDG targets relating directly to poverty, inequality, economic and unemployment growth rates. In fact, BAU

[1] World Bank. 2023. https://thedocs.worldbank.org/en/doc/bae48ff2fefc5a869546775b3f010735-0500062021/related/mpo-zaf.pdf.
[2] World Bank. 2021. South Africa: Social Assistance Programs and Systems Review. © World Bank, Washington, DC.
[3] World Development Indicators Database. 2023.

could exacerbate unemployment, especially among those with low and middle education skill category. Low gross domestic product (GDP) growth and projected unemployment rates would also have negative knock-on effects on inequality, while poverty would only marginally decline. In short, if BAU were to continue, South Africa would not meet key SDGs.

Conversely, economic modelling showed that a targeted set of market supply and demand interventions could significantly boost economic growth, from 4.5% in 2023 to 7.0% by 2030, expanding GDP by 55.6%. Importantly, this approach substantially reduces the unemployment rate, dropping from 41.8% in 2023 to 28.3% by 2030.

However, under market intervention scenarios income inequality remains persistently high, while poverty shows only marginal declines. Expanding social protection for those currently excluded is essential in the short to medium-term, with the objective of stimulating economic growth while simultaneously reducing poverty.

Social grant scenarios, particularly when conditional and financed by SDG Stimulus, showed the greatest likelihood of achieving poverty and inequality-oriented SDGs by 2030. The combined SDG Push scenarios would help the country achieve key SDGs consistent with South Africa's overarching aim to tackle the triple development challenges of unemployment, inequality, and poverty.

In summary, the economic modelling highlighted the social limitations of addressing only the supply and demand side of the national skills mismatch dilemma. While these measures propel the economy into the desired high growth and employment path, inequality and poverty remain stubbornly high.

A conditional social grant package under the SDG Stimulus is needed to address poverty and inequality. South Africa needs a combination of policies - skills formation acceleration together with growth in targeted service and industrial sectors, as well as social grants conditional on labor participation - rather than a single policy to effectively address its triple challenge of high unemployment, poverty, and inequality.

2. Introduction

In 2020, the COVID-19 pandemic had a significant impact on global development, compounding interlinked crises, reversing progress, and exacerbating existing poverty and inequalities.[4] In South Africa, the pandemic worsened structural challenges and weakened economic growth, hindering the country's efforts toward development progress. South Africa faces the triple development challenges of high poverty, inequality, and unemployment, with progress stalling in the past decade. Unemployment peaked at 34.9 percent in 2021 and remains high at 32.6 percent in 2023.[5] Inequality and poverty levels have remained high, with a Gini coefficient of 0.63 and poverty headcount ratios of 40.0 percent and 55.5 percent for lower- and upper-bound poverty lines, respectively.[6] Since the global recession of 2008, the country has seen slower economic growth, averaging 1.1 percent annually from 2009 to 2021.[7]

South Africa is committed to addressing these challenges through its National Development Plan (NDP) which in turn enables the nation to fulfil its commitments towards the Sustainable Development Goals (SDGs), as well as the Southern African Development Community (SADC) and African Union Agenda 2063. The NDP, released three years before the SDGs, aligns with 92% of SDG objectives, reflecting the country's commitment to poverty alleviation and social inclusion. Over the past three decades, South Africa has implemented various laws and policies covering housing, transportation, water, mining, and energy, all aimed at achieving objectives like the SDGs. The Government's Economic Reconstruction and Recovery Plan 2020 (ERRP), the primary policy framework for tackling the triple development challenges, focuses on economic growth, investment, and redistribution, particularly through a stimulus package to counter the economic crisis induced by COVID-19. Even so, South Africa needs innovative policy package interventions that foster economic growth, address unemployment, inequality, and poverty, all while considering the implications on public finances, to meet its developmental goals.

To this end, the SDG Push framework, developed by the United Nations Development Programme (UNDP) SDG Integration team, was piloted in South Africa. The SDG Push aimed to identify pathways that could focus and accelerate the country's development within fiscal constraints.

[4] https://sustainabledevelopment.un.org/index.php?page=view&type=20000&nr=7158&menu=2993
[5] World Bank. 2023. https://thedocs.worldbank.org/en/doc/bae48ff2fefc5a869546775b3f010735-0500062021/related/mpo-zaf.pdf.
[6] World Bank. 2021. South Africa: Social Assistance Programs and Systems Review. © World Bank, Washington, DC.https://openknowledge.worldbank.org/entities/publication/6db22b37-6c7e-5b0b-bce7-8a8f8b11a709
[7] World Development Indicators Database. 2023.

Globally, the COVID-19 pandemic disrupted progress towards the SDGs, for instance only 15% of the targets were on track at mid-point in 2023. Bold and transformative choices are therefore necessary to steer countries back on track. To lift millions out of extreme poverty by 2030, a comprehensive set of integrated SDG investments covering governance, social protection, green economy, and digitalization are urgently needed.

The SDG Push framework was piloted in five countries: Namibia, South Africa, Peru, Indonesia, and Moldova, with additional research conducted in Iraq. It was designed as an all-terrain tool, to catalyze breakthroughs from real-world constraints, rather than adding mechanical benchmarks or targets. The progressive roll out in pilot countries was led by Governments together with a team of experts, delivering a country-specific playbook that bridged short run and long run horizons. In this report we focus on South Africa.

The SDG Push framework provides a comprehensive and country-specific UNDP tool to plan and implement SDG breakthroughs in a variety of development contexts, for both pro-cyclical and anti-cyclical response moments – elevating fiscal, financial, digital/data and governance enablers of sustainable development. It builds on lessons learned through the COVID-19 pandemic and the first half of the 2030 Agenda by advancing longer-term structural transformation while balancing short-term imperatives.

The SDG Push Framework comprises the following key components:

- **Scoping**: examining specific contexts and trends with data visualization through the SDG Push Diagnostic, establishing a rapid landscape of trends, current priorities, futures, and interlinkages.
- **Acceleration Dialogues**: leveraging sensemaking protocols to explore scoping outcomes, interrogate previous policies, and chart accelerators.
- **Modelling**: engaging new forms of participatory and economic modelling to assess the impact of potential accelerators.
- **Sustainable Finance**: estimating financing and the feasibility of potential accelerators, using SDG finance tools, including the Integrated National Financing Framework (INFF).
- **Acceleration Pathways**: integrating insights developed through this approach with data visualizations and recommendations to advance policy interventions.

These components are essential in identifying development gaps, challenges, and drivers, developing potential interventions to address each challenge, and systematically assessing the costs, interlinkages and trade-offs related to the acceleration plan. They work as an integrated

iterative process, where progress in each component reinforces the other elements of the SDG Push.

This report is intended to provide an overview of the SDG Push Framework application to South Africa. It complements the suite of SDG Push tools and the diagnostic, together with technical annexes related to data analysis and policy modelling. The report is structured to provide an overvie3.w of framework design and implementation, summarizing the findings of each SDG Push scenario, and mechanisms for delivery within financial constraints.

3. SDG Push Pilot: South Africa

The SDG Push Framework represents a dynamic systems approach to development transformation. Despite the ongoing efforts of South Africa, a comprehensive review of the NDP 2030 conducted by the National Planning Commission (NPC) revealed slow progress towards its goals. This in turn has hindered progress and, in some cases, rendered SDG targets seemingly impossible to achieve. Faced with the compounding effects of COVID-19 and other global and national crises, the outlook for the country was characterized by high poverty, inequality, and unemployment. These challenges, coupled with energy supply issues, significantly impeded progress in South Africa.

In response to these challenges, and at the request of the Government, the SDG Push pilot was launched to identify intervention pathways to address the triple challenge and therefore help accelerate the SDGs. The pilot aimed to identify viable pathways that could tackle the triple challenge country's existing and anticipated fiscal constraints and prioritized the following pathways: Skill formation acceleration; Service Sector growth; Industrial Sector growth; and social grants.

3.1 Scoping Phase

The SDG Push pilot started with a scoping phase to assess gaps and bottlenecks. It provided South Africa’s Government with a high-level overview of the development landscape and the existing challenges, and strategic policy and planning documents. This was essential to understand the socioeconomic, institutional, and environmental landscape, map SDG gaps, evaluate SDG progress, and identify potential interventions that could accelerate action to achieve the 2030 Agenda. In addition, the initial phase of the SDG Push Framework identified data availability, disaggregation, and consistency in their monitoring over time. Policymakers were guided through the current state of SDG progress via a Diagnostic Simulator integrated into the

Data Futures Platform which then fed into the validation and consultative review of SDG accelerators, bottlenecks, and financing.

The insights garnered from the SDG Push Diagnostic Simulator and additional research informed the *Scoping Note* (see Appendix I), laying the groundwork for subsequent phases of the SDG Push. Diagnostic is a tool which leverages machine learning techniques to detect disparities in SDG advancement on a national scale. It undertakes a preliminary, in-depth examination of accessible national data and knowledge reservoirs to pinpoint areas of paramount importance for national development. The Diagnostic provided the basis to assess South Africa's progress toward its SDG targets. This was systematically organized in accordance with the *five Ps of sustainable development*:

1. People - comprising 47 targets.
2. Peace - encompassing 12 targets.
3. Planet - encompassing 46 targets.
4. Prosperity - encompassing 45 targets. and
5. Partnership - comprising 19 targets.

Based on the additional assessment of six strategic documents, SDGs 16, 8, 10 and 1 were found to be the most prominent goals.[8] Mapping South Africa's SDG priorities according to progress identified in a trend analysis helped to understand which SDGs were off-track, alongside their level of priority (low or high). This provided a comprehensive starting point for acceleration dialogues (see Appendix II: Target Output for SDG Push).

3.2 Acceleration Dialogues

The second phase of the SDG Push process was a series of systemic and multi-stakeholder dialogues. Analysis from the scoping phase was explored through acceleration dialogues to understand strengths (what was working), gaps (what needed attention), trends (emerging risks and opportunities), and interlinkages (interconnection of issues, solutions, and SDG indicators). The SDG Push dialogue was organized by the NPC Secretariat in collaboration with UNDP. A total of 43 people from the government, academia, civil society, and development partners attended the SDG Push dialogue. Participants were mandated to identify SDG Push interventions

[8] Revised Medium Term – 2024; National Development Plan 2030; the United Nations Sustainable Development Cooperation Framework; the Common Country Analysis; Voluntary National Review 2019; Economic Reconstruction and Recovery Plan 2020.

that would accelerate the SDGs while taking into consideration the interlinkages (synergies and trade-offs).

The dialogues were held in two phases, in person and online. The initial in-person dialogue phase focused on a structured interrogation and validation of the insights from the scoping phase (see Appendix I). In this dialogue, participants held a focused discussion on the three challenges of poverty, unemployment, and inequality to identify issues that prevented action to address the triple challenge. Participants concluded that programmes and projects designed to address these challenges were lacking in implementation. In addition, participants noted the lack of a coordinating body to oversee various interventions and programmes, with monitoring oversight to evaluate these programmes' progress toward their intended objectives.

The second phase explored current interventions, their effectiveness and determined whether these interventions were stop-gap, or long-term interventions to address the triple challenge. The lack of or poor implementation was seen as the biggest stumbling block to addressing the key development challenges.

The final phase of the dialogue was focused on identifying a set of accelerators that could drive SDG progress in the short and medium term. These included expanding social protection schemes, growing the economy, and involving the private sector and other actors in the effort to achieve the SDGs. There was a consensus on the need for social protection and its value as an accelerator for addressing multiple challenges of poverty, inequality, and unemployment. Since these programmes had already been implemented for some time in South Africa, the discussion focused more on potential areas of expanding these programmes in terms of raising the monetary value to match the poverty lines, increasing child support grant, and extending them to start while the mother is still pregnant, and expanding the grants to the population aged 8–59 who are currently not covered. A complementary solution to social protection was to enact economic growth, since the two are directly linked. The role of the private sector was highlighted as being critical for addressing the development challenges of the country; hence, the conversation is currently focused on how the private sector should benefit from the Government. For more detail on Acceleration Dialogues see Appendix III.

3.3 Modelling

Building from the acceleration dialogues and identified accelerators, the third phase of the pilot was the costing and analytical modelling exercise. At the heart of the economic modelling approach was a carefully designed tool for the South African economy, which combined a sequential dynamic Computable General Equilibrium (CGE) model and a micro-simulation (MS)

model, both top-down and bottom-up. The modelling framework's primary innovation was a coherent and systematic combination of the macro-micro and micro-macro effects of policy combinations that simultaneously address economic growth, unemployment, and inequality, in line with reaching the SDG targets. A participatory modelling approach was applied to develop customized analytical tools for evidence-based policymaking (see Appendix IV: Modelling Data). The potential pathways emerging from this stage were then fed back into acceleration dialogues and proposed accelerators validated with country partners.

The tool simulated the likely future impacts of the scenarios identified during the acceleration dialogues for the 2023–2030 period and drew applicable lessons for action toward key SDGs targets. The economic modelling for South Africa identified six focus SDGs: 1, 2, 4, 8, 9 and 10; and 13 corresponding indicators. The modelling showed that if South Africa were to persist with the business-as-usual (BAU) path, the country would be completely off-track on four of the six indicators. On the other hand, a mixed picture emerged when modelling the SDG Push scenarios identified during the acceleration dialogues. In these scenarios, the purely economic-oriented SDGs (SDGs 8 and 9) were met. However, the poverty-oriented SDGs (SDGs 1 and 10) were not. It is a positive sign that the country meets SDG 9 relating to manufacturing growth, because this begins to address an important underlying, long-term problem of deindustrialization.

1. Baseline Scenario: business-as-usual (BAU)

The first step in creating a reference point against which the SDG Push scenarios could be compared was to build a Baseline Scenario from BAU output information. This modelling was based on economic growth performance for the period 2014–2019.[9] The BAU scenario showed that on its current trajectory South Africa would only achieve 1.7 percent growth in 2030 compared to 1.6 percent in 2023 (this varies across sectors).[10] This low growth rate translates into rising unemployment particularly for relatively higher skill categories. On the current BAU trajectory, unemployment would reach 40.8 percent nationally by 2030. Both the low growth projected in gross domestic product (GDP) and unemployment rates would have negative knock-on effects on the Gini index, with inequality projected to increase by 0.021 in 2030, compared to 2023; while poverty marginally declined by 1.2 percentage points (upper-bound poverty line), 1.1 (lower-bound poverty line) and 0.8 (food poverty line). Thus, were BAU to continue, South Africa would be expected to fall short on key SDG targets, particularly those relating to poverty, inequality, and economic and unemployment growth rates.

[9]World Development Indicators 2023 database.
[10] For agriculture and services, the annual growth rates are constant over the period 2023-2030.

2. Skills Formation

This scenario tested doubling the supply of tertiary education from an annual increase of 2.2 percent under the BAU scenario to 4.4 percent. Labor markets were the entry point for this SDG Push scenario, which focused solely on market supply through skill formation and labor supply changes for 2023–2030. The overall results showed progress but persistent challenges in reaching corresponding poverty and inequality-oriented SDGs.

The scenario projected that labor supply for people with primary skills would continue to decline by 3.3 percent over the 2023–2030 period, consistent with BAU. In contrast, labor supply of all other skill categories showed an increase, consistent with BAU, but with some variation between 2023 and 2030 for secondary skill categories and respective growth rates from those in the BAU. When comparing 2030 to 2023, for middle skill categories, the increase is 0.7 percent, while it is 3.2 percent and 3.3 percent for secondary education skill category and 4.4 percent for the tertiary education skill category. While wage rates for primary skills in 2030 compared to 2023 were expected to increase due to increasing scarcity of labor, the rest of the relatively higher skilled people wage rates were projected to decline, respectively by (0.2 percent secondary and 0. 1 percent tertiary), leading to an economy-wide decline of 0.1 percent when comparing 2030 to 2023. The economy-wide wage rate dropped from 0.2 percent to 0.4 percent when comparing 2030 to 2023. Once again, these results were informed by relative scarcities implied by labor supply changes.

Demand for people with primary skills was projected to decrease marginally to 0.4 percent in 2030, compared to 1 percent in 2023. In contrast, when comparing 2030 to 2023, labor demand for the other higher skill categories rose more than for primary skill categories. For middle skill categories, the increase was 1.7 in 2030 and 1.5 percent in 2022, while it was 1.8 percent and 1.7 percent for the secondary education skill category, and finally, 2.1 percent and 2.2 percent for the tertiary education skill category.

Unemployment remains very high, at 40.2 percent, albeit slightly lower than the 42.4 percent for 2023. For the primary education skill category, the unemployment rate reduced from 42.7 percent in 2022 to 20.5 percent in 2030. On the other hand, for the secondary education skill category, the unemployment rate increased from 46.0 percent in 2022 to 52.0 percent in 2030. The situation was also similar for the tertiary education skill category where unemployment rose from 22.2 percent in 2022 to 34.6 percent in 2030.

The implication of these results is that relying solely on supply-side measures of skills formation acceleration becomes self-defeating, because the skills produced are wasted through massive

unemployment of those skills. These relatively low economic growth rates combined with rising unemployment rates contribute to generally benign effects on poverty and negative inequality outcomes. The Gini index of inequality increased by 0.021 percentage points for 2023 to 2030, while poverty marginally declined by 1.3 percentage points (Upper-Bound Poverty Line), 1.2 percentage points (lower-bound poverty line) and 0.8 percentage points (food poverty line) over the same period.

3. Skills Formation Acceleration Combined with Demand-Side Interventions

This scenario was a comprehensive focus on market supply and demand stimulation of the services and industry sector, testing the following interventions:

- Doubling of the supply of tertiary education, i.e. from an annual increase of 2.2 percent under the BAU scenario to reach 4.4 percent.
- Economic growth acceleration for services.
- Industry sector growth accelerated to generate an identical economy-wide average growth rate over the 2023–2030 period to that for services.
- Identification of sectors to target using demand stimulus by simulating an economy-wide growth rate increase by 1 percentage point.

Overall, the results showed extremely promising results for achieving economic and employment-oriented SDGs compared to those reported in the preceding scenario. However, the poverty and inequality outcomes continued to fall short of those envisaged by the corresponding SDGs. In Scenario 3, economic growth would accelerate from 4 percent in 2023 to 7.4 percent under the combined scenario and see a substantial reduction of the unemployment rate from 41.8 percent in 2023 to 28.3 percent by 2030.

The scenario sought to identify economic sectors and sub-sectors to target when operationalizing the SDG Push Strategy using demand stimulus as demand-side measures. In South Africa, quality employment is a substantial problem for relatively higher-skilled labor (relative to those with primary-level education skills). Demand-side interventions are generally scarce, except for a motor vehicle subsidy and the more recent youth employment subsidies. Employment programmes are rare, particularly demand-side such as comprehensive wage subsidies. To design these programmes, it was necessary to identify which sectors are ideal for fostering higher skilled employment that is now in abundance. As such, it was particularly instructive to use a general equilibrium approach that identified which sectors are suitable for a skilled labor wage subsidy programme that will create jobs for skilled labor. The combined results show that personal

and social service activities, transport, finance, and insurance can make the greatest contribution out of all the industries tested to reduce unemployment while increasing economic growth.[11] These sectors within services and industries can contribute to increasing overall productivity and reducing unemployment while also contributing to absorbing a high number of highly educated skilled labor. Putting together a programme to stimulate these sectors would be economically viable. Despite all the efforts, inequality remained stubbornly high in this combined scenario, increasing by 0.034 percentage points from 2023 to 2030, while poverty marginally declined by about 3.8 percentage points (upper-bound), 3.4 percentage points (lower-bound) and 2.5 percentage points (food poverty line).

4. The Social Grant Scenarios

Under the poverty-alleviating social grants intervention, two counterfactual samples were generated to build two counterfactual scenarios in addition to the Baseline Scenario:

- An *Unconditional Social Grant Scenario* which if implemented increases food and non-food consumption expenditures and decreases in labor market participation by members of target households.
- A *Conditional Social Grant Scenario* which if implemented increases food and non-food consumption expenditures combined with increases in labor market participation by members of target households. The conditionality in this second scenario is related to the labor market participation of members of the target households.

In the two scenarios, it was assumed that additional grant expenditure would be externally funded through for example an SDG Stimulus. Each scenario shows how policies could enhance economic growth and reduce unemployment, poverty, and inequality. The economic and fiscal cost of the SDG Push financed internally (i.e. government financing) and externally (i.e. through the SDG Stimulus) were then derived from the modelling.

There was a decline in the annual GDP growth rate under the Conditioned Social Grant Scenario. This result could reflect the tendency of savings transmitted into private investment to lower or crowd out economic growth prospects. Under the unconditional Social Grant Scenario, results showed a further increase of public deficit and a decrease of aggregate investment. The decrease in labor supply increased direct economic costs through two channels of transmission: increased

[11] The rationale behind excluding government services from this list even when its performance compares favorably to identified sectors is of course that we are seeking from the intervention to stimulate private sector participation in the economy to assist the Government in achieving the committed SDGs (see Stakeholder Dialogue Report).

wage cost; and reduced job and economic opportunities. The decline in GDP growth accelerated to 2.7 percentage points per year, i.e. 22.8 percentage points over the 2023–2030 period.

In terms of public financing results, the modelling showed that under the Social Grants scenario 25 million South Africans could be lifted out of poverty (using the lower-bound poverty line and the food poverty line) and inequality could decline by 8.35 percent. The economic costs under government financing are direct and indirect. Direct costs would translate into US$6.5 billion per year on average (US$52 billion, 2023–2030). The indirect costs would be an annual GDP growth rate – i.e. a reduction of 0.8 percentage points (US$3.5 billion). The SDG Stimulus neutralizes the GDP growth effect over 2023–2030, i.e. similar GDP growth rates under SDG stimulus scenarios. The cost of the Social Grants Scenario is 2.63 times higher under the unconstrained scenario than under the constrained scenario. In both scenarios, a substantial contribution of SDG Stimulus (approximately 80 percent on average) would be needed to wipe out the negative economic growth impact.

3.4 Results

It emerged from the results that in a BAU scenario South Africa is not on track to achieve its target SDGs. However, South Africa could course correct to achieve SDG targets directly related to higher economic growth and reduced unemployment by skill matching and targeting growth sectors that are intensive in their demand for skills. Even so, it could partially meet the SDGs related to poverty, while not meeting those related to inequality. Conversely, social grants, particularly when conditional and financed under the SDG Stimulus, could meet the poverty and inequality-oriented SDGs by 2030. Thus, the combined SDG Push scenarios would help the country achieve the identified SDGs in line with its overarching aim to tackle the triple development challenges of unemployment, inequality, and poverty (see Appendix V: Results Based Assessment).

In sum, the economic modelling results highlight the social limitations of depending solely on addressing the supply and demand side of the national skills mismatch dilemma. While the measures propel the economy onto the desired high growth and employment path, inequality and poverty remain stubbornly high. A conditional social grant package under the SDG Stimulus is needed to address poverty and inequality. Financing options and feasibility are critical for implementation of the accelerators. Thus, what South Africa requires for the SDG Push is a combination of policies rather than one policy alone to effectively address the triple challenge of high unemployment, poverty, and inequality.

4. Conclusion

If South Africa continues BAU, it will not be on a trajectory to achieve targeted SDGs by 2030. The projected economic growth rate, in the wake of COVID-19, is simply not enough to address the country's triple development challenges of poverty, inequality and unemployment. Nevertheless, the modelling showed that reductions in poverty, inequality and unemployment are feasible from an economic and a fiscal perspective through several acceleration pathways.

Overall, the analysis presented in this report shows that transitioning towards achieving key SDGs by 2030 is not only desirable from a social (poverty and inequality reduction) viewpoint, but also feasible when considering economic and fiscal impacts and consequences. While the SDG Push market-based interventions focused on addressing both the demand and supply side and propel the economy onto the desired high growth and employment path, inequality and poverty remain stubbornly high. A conditional social grant package under the SDG Stimulus is needed to address poverty and inequality.

Addressing the substantial financial barriers is crucial to achieving the SDGs and underscores the importance of unlocking new financial mechanisms and opportunities. Based on the analysis, the Government can choose to design its policy package according to its economic and social preferences while also considering the effective achievement of the related SDGs.

The next actions are critical to realize the envisaged transformation. That is, establishing a mechanism for regular dialogue within Government and stakeholders, which is informed by data and evidence on progress and commitments. It therefore means that in addition to a mechanism for regular dialogue, a mechanism is needed to track progress on addressing the triple challenge as well as the commitments related to acceleration pathways. These mechanisms needn't be new. Ideally, these mechanisms will piggyback on existing structures and processes with heightened attention placed on the triple challenge and acceleration pathways.

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Technical Appendices

Appendix I: The Scoping Note - Synthesis

The Scoping Note marked the initial stride towards developing South Africa's Sustainable Development Goal (SDG) Push Framework. To provide the South African Government with a high-level overview of the development landscape and the existing challenges, an overview of existing strategic policy and planning documents was a first step towards developing South Africa's SDG Push Framework. An in-depth overview of national development plans and strategies was essential to understand the country's socioeconomic, institutional, and environmental landscape, map out SDG gaps, evaluate SDG progress, and identify potential interventions that could accelerate the achievement of the 2030 Agenda for Sustainable Development. In addition, the initial phase of SDG Push Framework has identified data availability, disaggregation, and consistency in their monitoring over time. This is important because data availability, reliability and accuracy are needed to correctly identify SDG gaps and the development pathways that can accelerate the SDGs.

Since the advent of democracy in 1994, South Africa has prepared and put forward a series of strategic and sectoral plans, frameworks, strategies, and programmes to alleviate poverty and marginalization that colonialism and apartheid caused across the country. The National Development Plan (NDP) 2030 aims to tackle deep-rooted, socio-economic inequalities inherited from the oppressive apartheid government system predating the democratic transition in 1994. While released three years ahead of the SDGs, 92 percent of the NDP objectives map to the 169 SDG targets.

Over the last three decades, the country introduced a wide array of housing, transport, water, mining, energy, economic, labor, spatial planning and land-use management, municipal and environmental **laws in the national and provincial domains** that call for the preparation, adoption, implementation, monitoring, evaluation and review of plans, policies and frameworks that have very similar objectives to those captured in the SDGs.

The **development conduits** are summarized in the following documents:

- **the National and Provincial Development Platform/Conduit** consisting of the National Budget, the Medium-Term Strategic Framework (MTSF), the Medium-Term Expenditure Framework, the 2012 NDP, the National Infrastructure Plan, the National Spatial Development Framework, the Economic Reconstruction and Recovery Plan (ERRP) and the Agriculture and Agro-processing Masterplan.

- **the Provincial Development Platform/Conduit** consisting of the Provincial Budget, the Provincial Medium-Term Expenditure Framework, the Provincial Growth and Development Plans/Strategies and the Provincial Spatial Development Frameworks; and
- **the Municipal Development Platform/Conduit:** consisting of the Municipal Budget (MB), the Municipal Integrated Development Plans and the Spatial Development Frameworks, all three of which have legally binding powers on all public investment in their municipal areas of jurisdiction, and increasingly so in the district and metro One Plans, called to life by the District Development Model.

While these documents all bear testimony to the unique contexts and specific configurations of the challenges of the times in which they were drafted, and highlighted one or more priorities or goals, they all share a series of similar post-1994 objectives, as follows:

- Inclusive, rapid, shared, equitable and sustainable growth.
- Job creation at scale.
- A just economic transition from a natural resource-intensive, high-carbon economy to a knowledge-intensive carbon-neutral one.
- macro and micro spatial transformation.
- Urban, regional, and rural development.
- Urban and rural land reform.
- The management, wise use, and protection of the country's natural resources.
- Agrarian reform and the expansion of agriculture produce and agro-processing.
- Access to transport, telecommunications and logistics infrastructure networks, power grid and facilities investment, maintenance and upgrading.
- Skills development.
- Social service planning and provisioning.

An integral aspect of the scoping process is the utilization of the SDG Push Diagnostic Simulator, which leverages sophisticated machine learning techniques to detect disparities in SDG advancement on a national scale. Moreover, it undertakes a preliminary, in-depth examination of accessible national data and knowledge reservoirs to pinpoint areas of paramount importance for national development.

Based on the Diagnostic Simulator it was possible to assess the progress that South Africa made in attaining distinct SDG targets, systematically organized in accordance with the 'five Ps of sustainable development': People (comprising 47 targets), Peace (encompassing 12 targets), Planet (encompassing 46 targets), Prosperity (encompassing 45 targets) and Partnership (comprising 19 targets). As illustrated below, South Africa's national priorities were generated using machine learning to reveal the most prominent SDGs referenced in national policy documents. Through the assessment of six strategic documents (Revised Medium Term – 2024; National Development Plan 2030; the United Nations Sustainable Development Cooperation Framework; the Common Country Analysis; Voluntary National Review 2019; Economic Reconstruction and Recovery Plan 2020). SDGs 16, 8, 10 and 1 are the most prominent goals.

Figure A1. Artificial intelligence-generated national priorities

In addition, the mapping of SDG priorities according to current SDG progress that was identified in a trend analysis helps to understand which SDGs are off-track but potentially of low or high priority in national documents, thus providing an insightful starting point for national dialogues. For instance, SDG 16 has been identified as off-track and ranks very high in national development documents.

Furthermore, through the analysis of synergies and trade-offs, more than 70 synergy links with other targets, shared across all SDGs, are found for indicator 16.6. Thus, getting this indicator back on track for 2030 through improved governance systems could help elevate many other indicators, some of which are also currently lagging. For instance, achieving full employment and improving living standards could help alleviate poverty and reduce inequalities. In addition, access

to reliable and secure energy is crucial to achieve meaningful progress in South Africa. The persistent issue of electricity load shedding highlights the need for short- and medium-term strategies. However, a long-term focus on significantly increasing the share of renewable energy is essential. This would result in greater electricity availability, reduced business disruptions, environmental protection, and decreased inequality.

Synergy links allow to identify possible accelerators for SDG 16, for instance, through improved and upgraded infrastructure with increased resource use efficiency. Specifically, SDG Target 9.4's emphasis on technological advancement, innovation and connectivity through information and communications technology (ICT) can contribute significantly to achieving the objectives of SDG Target 16.6. By providing broader access to technology, ICT and the internet, communities and societies can experience increased transparency, access to information and improved communication. This, in turn, can promote more effective and participatory decision-making, enhance accountability, and contribute to the development of responsive and inclusive institutions.

Given that South Africa has one of the most widespread social protection systems, its successful implementation requires accountable and transparent institutions. The latter can ensure that social protection measures are effectively targeted, resources are efficiently allocated, and benefits reach the intended beneficiaries without corruption.

Based on the conclusions of the scoping phase, several challenges linked to South Africa's ongoing SDG journey can be enumerated as follows:

1. **Resistance to change**: Considering the magnitude of the challenges confronting the nation, putting the SDG 2030 Agenda for Sustainable Development at the forefront of political conversation, and adding additional responsibilities to officials' workload are likely to encounter opposition.
2. **Inadequate funding/funds:** Given the country’s highly constrained fiscal situation, and the fiscal tightening underway both globally and domestically, obtaining enough funding will be no easy task, and will likely require doing far more with less, putting far more effort into securing funding and use it more effectively than in the past.
3. **Lack of political leadership:** Unless political leaders fully internalize the importance of achieving the SDGs, the likelihood of officials actively engaging in the tasks of advancing and expediting progress toward fulfilling the SDGs remains limited.

To overcome the challenges and achieve the developmental goals, the Scoping Note identified eight priority areas:

1. A swift and comprehensive land reform, focusing on youth participation in both urban and rural areas. This aims to; (i) create opportunities for settlements and economic activities, including 'smart villages' in rural regions; and (ii) enhance social cohesion and stability. This entails providing essential services such as water, electricity, sewerage and broadband, potentially generating new businesses and jobs, and introducing competition in concentrated industries.
2. Dedicated support for agriculture and agro-processing at a significant scale, particularly for emerging farmers. The goal is to bolster food production, decrease food prices and strengthen small and medium-sized agricultural enterprises. This initiative is expected to yield numerous upstream and downstream jobs across primary, secondary, and tertiary sectors.
3. Amplified investment in the tourism sector, necessitating a comprehensive range of activities and opportunities. Key aspects include diversifying ownership within the industry to create decent employment for all, expanding tourism to rural areas and small towns, and prioritizing the safety and security of tourists. This approach aims to improve lives and opportunities for vulnerable citizens.
4. Extensive infrastructure investment, focusing on ports, main roadways, and railway networks. This initiative aims to enhance competitiveness through improved trade efficiency and reduced costs. Additionally, it is projected to create numerous jobs, stimulate innovation, and bolster the country's appeal to investors and tourists.
5. Expansion of renewable energy generation and distribution, encompassing local micro-projects and grids. This seeks to provide reliable energy access, particularly to rural settlements. Such projects offer significant potential for enterprise growth and job creation, particularly for youth.
6. Scaling up water capture, storage, and distribution efforts, including dam construction, ecological restoration, and maintenance of water networks. This initiative addresses climate change impacts and holds potential for enterprise development and job creation across various sectors.
7. Implementation of widespread post-graduate youth service, involving the placement of graduates for research and professional services in urban and rural areas. This approach

aims to elevate qualifications, foster innovation, and create employment opportunities while contributing to community development.

8. The establishment and reinforcement of partnerships and compacts between various levels of government, the private sector, labor, communities, and non-governmental organizations (NGOs). This strategy aims to align infrastructure investment with social and economic development, strengthen communities, and enhance social cohesion and security. Sustained engagement, adherence to agreements, progress monitoring, and corrective action are crucial elements.

Appendix II: Target output for SDG Push

Target output	Progress in South Africa
Dynamic visualization of development landscape **This integrates multiple data sources and digital innovation to establish a rapid landscape analysis – SDG trends, current state, potential futures, and interlinkages.**	The challenge in South Africa is to zero in on the most critical areas that need to be addressed to maximize the impact of policy choices towards SDG investments. The SDGs linked directly to South Africa development challenges of poverty, inequality, unemployment, and low growth have been identified as priority areas to be modelled. • Scoping report in Appendix A. • Diagnostic Results: current trends, current priorities, interlinkages
2. Considered portfolios of interventions **These consist of structured dialogue methods and guidance to explore persistent challenges, barriers, root causes and emerging futures to co-create potential pathways and portfolios of interventions.**	The key entry points for South Africa for the SDG Push are: • Strengthening well-being and capabilities: Addressing peoples' capabilities to make life choices, which crucially depend on health, education, and a life free of poverty. The rule of law and the quality of institutions that underpin a peaceful society are also vital elements. • Shifting towards sustainable and just economies: Decoupling economic growth from environmental impacts and resource use, promoting equality, and ensuring economic opportunities, especially jobs. • Building sustainable food systems and healthy nutrition patterns: In transitioning towards sustainable food systems, the focus must be on enabling more equitable access to nutritional foods and maximizing the nutritional value of produce while minimizing the climate and environmental impacts of production. • Achieving energy decarbonization and universal access to energy: A clean energy revolution (in South Africa, in particular) is urgently needed to win the fight against energy poverty, to promote robust development and to make it more sustainable. Clean energy can unlock sustainable economic growth, improve human health and well-being, and enable women and children to lead more productive lives. • Promoting sustainable urban and peri-urban development: With most people living in cities, promoting sustainable urban and peri-urban development is more urgent than ever. The urban agglomeration presents growing and compounded health risks related to air pollution and communicable diseases, reflecting in part the lack of balance between natural and human systems, and uneven access to basic infrastructure and essential services. People in urban areas have generally been at the frontlines of the COVID-19 pandemic. • Securing the global environmental commons: This focuses on the goal of living within planet-wide environmental boundaries and protecting global ecological systems. South Africa hosts tremendous biodiversity but is also experiencing devastating environmental degradation. South Africa is also extremely vulnerable to climate change, which presents an existential threat in some areas.

Appendix III: Summary of the multi-stakeholder SDG Push Accelerator Dialogues

Part of the SDG Push process is the incorporation of a series of systemic and multi-stakeholder dialogues. The SDG Push dialogue was organized by the National Planning Commission (NPC) Secretariat in collaboration with the United Nations Development Programme (UNDP). A total of 43 people from the government, academia, civil society, and development partners attended the SDG Push dialogue; 27 on the first day and 31 people on the second day. The participants' mandate was to identify SDG Push interventions that would accelerate the SDGs while taking into consideration the interlinkages (synergies and trade-offs).

In South Africa, the Scoping Note identified three primary issues (poverty, inequality, unemployment) and eight potential accelerators. The design of the SDG Push dialogue based on the results of this Scoping Note began by having small groups of diverse participants explore the root causes of the issues, as well as what they thought were the most significant bottlenecks. The group then explored current government interventions (programmes and policies) on the ground. The aim was also for them to ideate and identify additional necessary interventions; however, this did not take place as planned.

Identifying challenges

The first phase of the dialogue was a focused discussion on the three challenges of poverty, unemployment, and inequality. The objective here was to identify the issues that prevented overcoming the key triple challenges previously identified. The participants were encouraged to reflect on:

- the causes of these challenges.
- why these challenges are not addressed.
- what the barriers and bottlenecks are from a Social, Technological, Economic, Environmental, Political and Value (STEEPV) as well as a legal perspective.

The overall conclusion was that there was a lack of implementation of programmes and projects designed to address these challenges. In addition, the participants mentioned the lack of a coordinating body that would oversee the various interventions and programmes and have monitoring oversight to determine whether these programmes are achieving their intended objectives.

Exploring current interventions and determining their effectiveness

The second phase explored current interventions and determined whether these are stop-gap, or long-term interventions for the triple challenges. Participants were encouraged to consider a set of issues including:

- identifying the programmes and interventions (e.g. social grants; Expanded Public Works Programme) in place to address these challenges.
- determining whether these interventions are stop gaps or long-term solutions.

For each intervention they could explore:

- the enablers of this intervention.
- the barriers.
- whether or not it is a sustainable intervention.
- its strengths, where it falls short, and how this can be improved.
- potential new interventions.

The lack of or poor implementation was seen as the biggest stumbling block to addressing the key development challenges. Six issues were identified as key for lack of implementation:

- Lack of government accountability.
- Inactive citizens.
- Coordination of programmes.
- Collaboration between branches of government (e.g. various departments) and between government and other sectors of society (e.g. the private sector, civil society).
- Corruption.
- Budget allocations and misallocations.

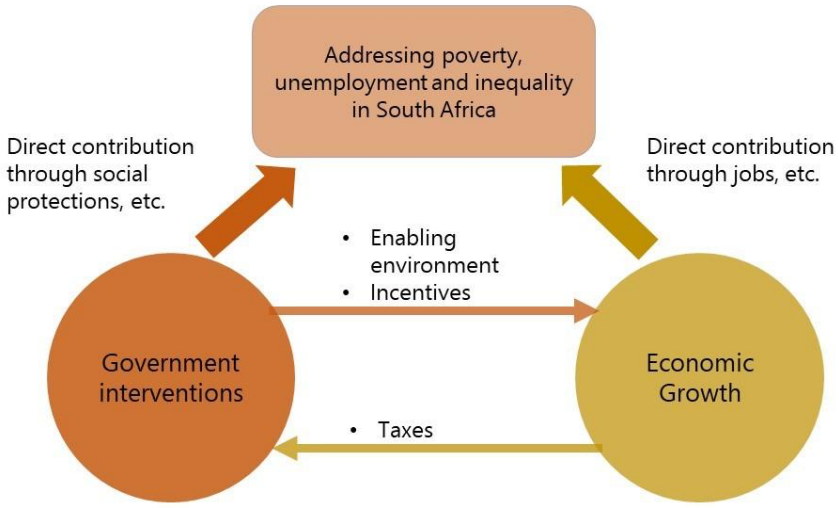
Identifying accelerators

The final phase of the dialogue was focused on finding the set of accelerators that would drive the SDG progress in the short and medium term. These included expanding **social protection schemes**, **growing the economy,** and involving the **private sector** and other actors in the effort to achieve the sustainable development goals.

There was a consensus on the need for social protection and its value as an accelerator for addressing multiple challenges of poverty, inequality, and unemployment. Since these programmes had already been implemented for some time in South Africa, the discussion focused more on potential areas of expanding these programmes in terms of **raising the monetary value to match the poverty lines**, increasing **child support grant, and extending them to start while the mother is still pregnant**, and **expanding the grants to the population aged 8–59** who are currently not covered.

A complementary solution to social protection was to enact economic growth, since the two are directly linked (Figure 2). The role of the private sector was highlighted as being critical for addressing the development challenges of the country; hence, the conversation is currently focused on how the private sector should benefit from the Government.

Figure A2.



Parameter	Value	Source
Production		
- Elasticity of substitution between capital and labor (value added)	0.3	Literature/Guesstimate
- Elasticity of substitution between value-added and intermediate consumption	0.3	Literature, guesstimate
- Elasticity of substitution between intermediate demand	0.3	Literature, guesstimate
Trade		
- Export demand elasticity	6.0	Literature, guesstimate
- Elasticity of transformation between domestic and foreign markets	2.0	Literature, guesstimate
- Elasticity of substitution between domestic and foreign products	3.0	Literature, guesstimate
Consumption		
- Income elasticity, food products	0.8	Literature, guesstimate
- Income elasticity, non-food products	1.6	Literature, guesstimate
Investment		
- Investment demand parameter	2.0	Literature, guesstimate
Unemployment (2021)		
- Unemployment rate primary	42.7 percent	Department of Higher Education and Training, South Africa (2022)

- Unemployment rate middle	52.7 percent	Department of Higher Education and Training, South Africa (2022)
- Unemployment rate secondary	46.0 percent	Department of Higher Education and Training, South Africa (2022)
- Unemployment rate tertiary	22.2 percent	Department of Higher Education and Training, South Africa (2022)
Population (average, 2010–2019)		
Population growth rate	1.15 percent	World Development Indicator
Labor force growth rate (average, 2010–2019)		
Labor with primary school education (grades 1–7)	-3.3 percent	Department of Higher Education and Training, South Africa (2022)
Labor with middle school education (grades 8–11)	0.7 percent	Department of Higher Education and Training, South Africa (2022)
Labor completed secondary school education (grade 12)	4.3 percent	Department of Higher Education and Training, South Africa (2022)
Labor with tertiary education (certificates, diplomas, or degrees)	*2.2* percent	Department of Higher Education and Training, South Africa (2022)
Real wage differential (2019) *		
Labor with primary school education (grades 1–7)	1	Department of Higher Education and Training, South Africa (2022)

Labor with middle school education (grades 8–11)	3.7	Department of Higher Education and Training, South Africa (2022)
Labor completed secondary school education (grade 12)	5.8	Department of Higher Education and Training, South Africa (2022)
Labor with tertiary education (certificates, diplomas, or degrees)	*21.6*	Department of Higher Education and Training, South Africa (2022)
Economic growth rate (average, 2010–2019)		
GDP growth (annual percent)	1.7	World Development Indicator
Agriculture, forestry, and fishing, value added (annual percent growth)	2.3	World Development Indicator
Industry (including construction), value added (annual percent growth)	0.7	World Development Indicator
Manufacturing, value added (annual percent growth)	1.2	World Development Indicator
Services, value added (annual percent growth)	2.0	World Development Indicator
Poverty and inequality (2015)		
Upper-bound poverty line	55.5	Statistics South Africa
Lower-bound poverty line	40.5	Statistics South Africa
Food poverty line	25.2	Statistics South Africa
Gini index	0.65	Statistics South Africa

Appendix III: Modelling Data

1. Baseline Scenario: business-as-usual (BAU)

Table 1 shows a calibrated long-term growth rate or the steady state growth rate. The table also shows that were historical economic growth performance of 1.7 percent to be maintained, the national economy grows by 1.7 percent in 2030 compared to 1.6 percent for 2023–2029. Thus, these economy-wide growth rates are well calibrated because albeit low, still they show a growing economy consistent with growth in the input data.

Table 1: GDP growth rates, projections 2023–2030

	2023	2024	2025	2026	2027	2028	2029	2030
GDP, annual growth	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.7%

Source: World Development Indicator (2023) and CGE Model Simulation (2023).

To replicate the overall GDP growth in **Table 1** at a disaggregated level, an intermediate output sectoral output table is generated. **Table 2** provides information on the sectoral GDP between agriculture, industry, manufacturing change to match the calibrated GDP growth. Again, the model is behaving well: in 2030 compared to 2023, the sectors show positive projected economic growth rates as follows: 2.3 percent (agriculture), 1.2 percent and 0.9 percent (industry), 1.5 percent and 1.2 percent (manufacturing), and 2 percent (services).

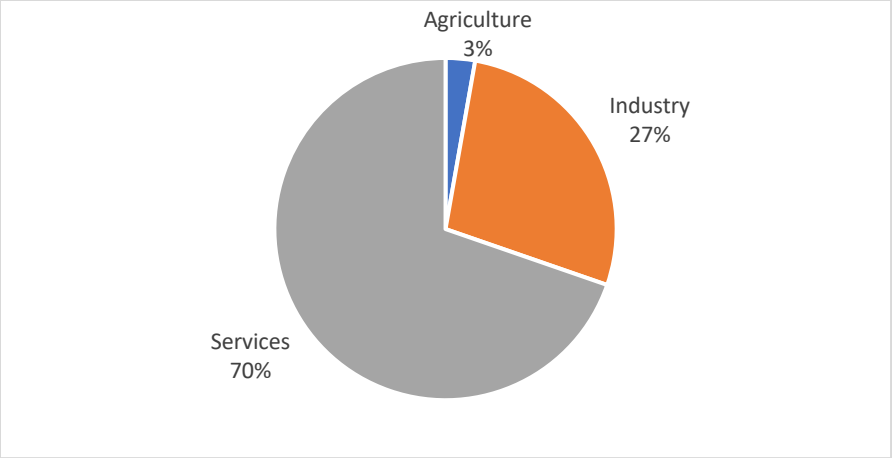
Table 2: Sector growth rates, projections 2023–2030

Sector	2023	2024	2025	2026	2027	2028	2029	2030
Agriculture	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.3%
Industry	**0.9%**	**0.9%**	**1.0%**	**1.0%**	**1.0%**	**1.2%**	**1.2%**	**1.2%**
Manufacturing	1.2%	1.2%	1.2%	1.3%	1.3%	1.4%	1.4%	1.5%
Services	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Source: World Bank. 2023. World Development Indicators; and CGE Model Simulation (2023).

The unemployment rate (national and by skill category) can be generated because information on the demand side and how that demand is evolving is now available through Tables 1 and 2. Hence, all changes that can be observed in the unemployment rate are a result of the supply side. As a preamble to discussions on unemployment, **Figure 3** shows that South Africa is generally biased towards medium to high skills in industry (manufacturing, mining, and quarrying) contributes 27 percent, while services (mainly, high skilled finance and insurance, real estate, and business services) constitutes 70 percent, with agriculture making a very small contribution to economic output, of 3 percent.

Figure 3: Structure of the national economy



Source: World Development Indicators (2023).

According to **Table 3**, consistent with the calibrated low GDP growth rates, unemployment reduces from 42.4 percent in 2023 to 40.8 by 2030, a small decline of 1.7 percentage points.

Table 3: Unemployment growth rates, projections 2023–2030

	2023	2024	2025	2026	2027	2028	2029	2030
Unemployment Rate	42.4%	41.9 %	41.6 %	41.3 %	41.0 %	40.9 %	40.8 %	40.8 %

Source: World Development Indicator (2023) and CGE Model Simulation (2023).

When disaggregating the unemployment rate by skill category, as shown in **Table 4,** the 2030 compared to the 2022 results are: 20.8 percent and 42.7 percent, respectively for the primary education skill category; 49.6 percent and 52.7 percent, respectively, for the middle education skill category; 55.6 percent and 46 percent, respectively for the secondary education skill category; and 25.2 percent and 22.2 percent, respectively for the tertiary education skill category). Indeed, these results demonstrate that were BAU to be maintained, South Africa's unemployment problem will be mainly middle, secondary, and tertiary skilled people, while relatively less so for those with primary skills.

Table 4: Unemployment rate by skill category, projections 2023–2030

	2022	2023	2024	2025	2026	2027	2028	2029	2030
Primary	42.7%	40.2%	37.5%	34.9%	32.1%	29.4%	26.5%	23.7%	20.8%
Middle	52.7%	52.3%	51.9%	51.5%	51.1%	50.8%	50.4%	50.0%	49.6%
Secondary	**46.0%**	**47.3%**	**48.5%**	**49.8%**	**51.0%**	**52.2%**	**53.3%**	**54.5%**	**55.6%**
Tertiary	22.2%	22.6%	22.9%	23.3%	23.7%	24.1%	24.5%	24.9%	25.2%

Source: World Development Indicator (2023), and CGE Model Simulation (2023).

These low growths in economic growth combined with high unemployment rates are projected to have negative knock-on effects on poverty and inequality, as shown in **Table 5**. The Gini index of inequality increases by 0.021 percentage points during the 2023–2030 period, while poverty marginally declines by 1.2 percentage points (upper-bound poverty line), 1.1 percentage points (lower-bound poverty line) and 0.8 percentage points (food poverty line) over the same period.

Table 5: Change in poverty and inequality, 2023–2030.

	Upper-bound poverty line (pp)	Lower-bound poverty line (pp)	Food poverty line (pp)	Gini index
Variation	-1.2	-1.1	-0.8	0.021

Note: pp=percentage point.

Source: Micro-Simulation Model (2023).

The remaining **Tables 6** through **10** use the CGE model BAU analysis to explain the reasons underlying the unemployment outcomes: the country's main unemployment problem is concentrated among middle, secondary, and tertiary skilled people, while relatively less so among those with primary skills.

Starting with **Table 6** showing changes in labor supply, we see that there are differential effects for the different skill categories. Labor supply for people with primary skills is projected to decline over the 2023–2030 period by 3.3 percent. In contrast, labor supply of the rest of the skill categories is on the increase. For middle skill categories, the increase is 0.7 percent, while it is 4.3 percent for the secondary education skill category and 2.2 percent for the tertiary education skill category for 2023–2030.

Table 6: Change in labor supply, projections 2023–2030.

	2023	2024	2025	2026	2027	2028	2029	2030
Primary	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%
Middle	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Secondary	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
Tertiary	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%

Source: CGE Model Simulation (2023).

Table 7 shows changes in labor demand that again show differential effects for the different skill categories, all of which are showing an increasing trend. Demand for people with primary skills is projected to increase marginally to 0.3 percent in 2030, compared to 1 percent in 2023. In contrast, labor demand for the other

higher skill categories rises by more than primary. For middle skill categories, the increase is 1.5 percent, while it is 1.8 percent for the secondary education skill category and 1.7 percent for the tertiary education skill category for 2023–2030.

Table 7: Change in labor demand, Projections 2023–2030

	2023	2024	2025	2026	2027	2028	2029	2030
Primary	1.0%	0.9%	0.8%	0.8%	0.7%	0.6%	0.4%	0.3%
Middle	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Secondary	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Tertiary	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%

Source: CGE Model Simulation (2023).

Table 8 shows changes in labor productivity. Productivity drops marginally to 1.6 percent in 2030 from 1.7 percent in 2023. This marginal decline partly contributes to observed unemployment across all skills categories.

Table 8: Change in labor productivity, projections 2023–2030.

	2023	2024	2025	2026	2027	2028	2029	2030
Variation	1.7%	1.7%	1.6%	1.7%	1.6%	1.6%	1.6%	1.6%

Source: CGE Model Simulation (2023).

Table 9 shows changes in respective wage rates for the skill categories. While wage rates increase for primary-skilled people (1.3 percent and 0.6 percent) and middle-skilled people (0.1 percent) in 2030 compared to 2023, the wage rates of the rest of the relatively higher-skilled people are projected to decline. These results can be mainly traced back to the relative scarcities shown in labor supply displayed earlier in

Table 9: Changes in wage rates, projections 2023–2030

	2023	2024	2025	2026	2027	2028	2029	2030
Primary	0.6%	0.7%	0.7%	0.8%	0.9%	1.0%	1.1%	1.3%
Middle	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Secondary	-0.3%	-0.3%	-0.3%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%
Tertiary	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%
All	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**

Source: CGE Model Simulation (2023).

Finally, **Table 10** shows changes in return to capital. This return shows an increase in 2030 of 0.1 percent, compared to a decline of 0.3 percent in 2023.

Table 10: Changes in return to capital, projections, 2023–2030

	2023	2024	2025	2026	2027	2028	2029	2030
Variation	-0.3%	-0.2%	-0.2%	0.0%	0.0%	0.1%	0.1%	0.1%

Source: CGE Model Simulation (2023).

Summing up the BAU scenario, the results show a well-calibrated model. If economic growth rates of 2014–2019 were maintained, the country can expect to achieve low economic growth for 2023–2030. These low growth rates translate into rising unemployment particularly for relatively higher skill categories with negative knock-on effects on poverty and inequality outcomes. Thus, were BAU to continue, South Africa is expected to fall short on the key SDGs, particularly those relating directly to poverty, inequality, economic and unemployment growth rates.

2. Doubling the supply of tertiary education

The discussion began by tracing the results from the labor markets (labor supply and demand, wage rates, productivity) since this market was the entry point for these scenarios. **Table 11** shows that SDG Push scenario focused solely on market supply through skill formation and labor supply changes for 2023–2030. The table shows differential effects for the different skill categories, which can be explained by assumptions made in the modelling of labor dynamics combined with the acceleration in skill formation embedded in the scenario design. Labor supply for people with primary skills is projected to continue declining over the 2023–2030 period by 3.3 percent, as in the BAU. In contrast, labor supply of the rest of the skill categories is on the increase as in the BAU, but this time displaying some variation between 2030 and 2023 for secondary skill categories and respective growth rates from those in the BAU. When comparing 2030 to 2023, for middle skill categories, the increase is 0.7 percent, while it is 3.2 percent and 3.3 percent for secondary education skill category and 4.4 percent for the tertiary education skill category.

Table 11: Change in labor supply, projections for 2023–2030.

	2023	2024	2025	2026	2027	2028	2029	2030
Baseline								
Primary	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%
Middle	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Secondary	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
Tertiary	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%

Skill Formation Acceleration, Tertiary Education								
Primary	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%	-3.3%
Middle	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Secondary	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.2%	3.2%
Tertiary	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%

Source: CGE Model Simulation (2023).

Table 12 shows changes in respective wage rates for the skill categories. While wage rates for primary skills in 2030 compared to 2023 are expected to increase due to increasing scarcity of labor, the rest of the relatively higher skilled people wage rates are projected to decline, respectively by (0.2 percent Secondary and 0. 1 percent tertiary), leading to an economy-wide decline of 0.1 percent for whole economy when comparing 2030 to 2023. The economy-wide wage rate drops from 0.2 percent to 0.4 percent when comparing 2030 to 2023. Once again, these results are informed by relative scarcities implied by labor supply changes displayed in the preceding table (**Table 11**).

Table 12: Changes in wage rates, projections for 2023–2030

	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Baseline								
Primary	0.6%	0.7%	0.7%	0.8%	0.9%	1.0%	1.1%	1.3%
Middle	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Secondary	-0.3%	-0.3%	-0.3%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%
Tertiary	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%
All	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**
Skill Formation Acceleration, Tertiary Education								
Primary	0.6%	0.7%	0.7%	0.8%	0.9%	1.0%	1.2%	1.3%
Middle	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Secondary	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%
Tertiary	-0.7%	-0.6%	-0.6%	-0.6%	-0.5%	-0.5%	-0.5%	-0.4%
All	**-0.4%**	**-0.4%**	**-0.4%**	**-0.3%**	**-0.3%**	**-0.3%**	**-0.2%**	**-0.2%**

Source: CGE Model Simulation (2023).

Table 13, which displays changes in labor demand, shows differential effects for the different skill categories, all of which show an increasing trend compared to the BAU, except for the secondary category. Demand for people with primary skills is projected to decrease marginally to 0.4 percent in 2030, compared to 1 percent in 2023. In contrast, when comparing 2030 to 2023, labor demand for the other higher skill categories rises more than for primary skill categories. For middle skill categories, the increase is 1.7 in

2030 and 1.5 percent in 2022, while it is 1.8 percent and 1.7 percent for the secondary education skill category, and finally, 2.1 percent and 2.2 percent for the tertiary education skill category.

Table 13: Change in labor demand, projections for 2023–2030.

	2023	2024	2025	2026	2027	2028	2029	2030
Baseline								
Primary	1.0%	0.9%	0.8%	0.8%	0.7%	0.6%	0.4%	0.3%
Middle	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Secondary	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Tertiary	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
Skill Formation Acceleration, Tertiary Education								
Primary	1.0%	0.9%	0.9%	0.8%	0.7%	0.6%	0.5%	0.4%
Middle	1.5%	1.5%	1.5%	1.6%	1.6%	1.6%	1.6%	1.7%
Secondary	1.7%	1.7%	1.7%	1.8%	1.8%	1.8%	1.8%	1.8%
Tertiary	2.2%	2.2%	2.2%	2.2%	2.1%	2.1%	2.1%	2.1%

Source: CGE Model Simulation (2023).

In **Table 14** results on labor productivity are shown. The results show that productivity marginally falls to 1.9 percent in 2030 from 2 percent in 2023.

Table 14: Change in labor productivity, projections for 2023–2030.

	2023	2024	2025	2026	2027	2028	2029	2030
Baseline	1.7%	1.7%	1.6%	1.7%	1.6%	1.6%	1.6%	1.6%
Skill Formation Acceleration, Tertiary Education	2.0%	2.0%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%

Source: CGE Model Simulation (2023).

Table 15 shows changes in return to capital. This return shows growth of return to capital declining to 0.2 percent in 2030 from 0.4 percent in 2023.

Table 15: Changes in the return to capital, projections 2023–2030

	2023	2024	2025	2026	2027	2028	2029	2030
Baseline	-0.3%	-0.2%	-0.2%	0.0%	0.0%	0.1%	0.1%	0.1%
SFA, Tertiary Education	0.4%	0.3%	0.3%	0.3%	0.2%	0.3%	0.2%	0.2%

Source: CGE Model Simulation (2023).

As alluded earlier at the beginning of this sub-section, the culmination of results discussed so far are displayed in **Tables 16** and **17**. In 2030 compared to 2023, GDP rises to 1.9 percent from 1.7 percent. Sectoral growth is also positive, with economic growth rates of 2.4 percent (agriculture), 1.5 percent and 1 percent (industry), 1.7 percent and 1.4 percent (manufacturing), and 2.2 percent (services).

Table 16: GDP growth rate, projections 2023–2030

Scenario	2023	2024	2025	2026	2027	2028	2029	2030
Baseline	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.7%
SFA, * Tertiary	1.7%	1.7%	1.7%	1.8%	1.8%	1.9%	1.9%	1.9%

Note: SFA stands for Skill Formation Acceleration.

Source: CGE Model Simulation (2023).

Table 17: Sector growth rate, projections 2023–2030

Sector	2023	2024	2025	2026	2027	2028	2029	2030
Baseline								
Agriculture	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.3%
Industry	0.9%	0.9%	1.0%	1.0%	1.0%	1.2%	1.2%	1.2%
Manufacturing	1.2%	1.2%	1.2%	1.3%	1.3%	1.4%	1.4%	1.5%
Services	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Skill Formation Acceleration, Tertiary Education								
Agriculture	2.4%	2.3%	2.3%	2.3%	2.4%	2.3%	2.4%	2.4%
Industry	1.0%	1.1%	1.1%	1.2%	1.2%	1.4%	1.4%	1.5%
Manufacturing	1.4%	1.4%	1.4%	1.5%	1.5%	1.6%	1.6%	1.7%
Services	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%

Source: CGE Model Simulation (2023).

The unemployment rates (national and by skill category) are shown in **Tables 18** and **19**. According to **Table 18**, unemployment remains very high, at 40.2 percent, albeit lower than the staggering 42.4 percent for 2023. **Table 19 shows** unemployment rates disaggregated by skill category. For primary education skill category, the unemployment rate reduced from 42.7 percent in 2022 to 20.5 percent in 2030. On the other hand, for secondary education skill category, the unemployment rate increased from 46.0 percent in 2022 to 52.0 percent in 2030. The situation is also similar for tertiary education skill category where unemployment rises from 22.2 percent in 2022 to 34.6 percent in 2030.

The implication of these results is that relying solely on supply-side measures of skill formation acceleration becomes self-defeating, because the skills produced are wasted through massive unemployment in those skills.

Table 18: Unemployment rate, projections 2023–2030

Scenario	2023	2024	2025	2026	2027	2028	2029	2030
Baseline	42.4%	41.9 %	41.6 %	41.3 %	41.0 %	40.9 %	40.8 %	40.8 %
SFA Tertiary	42.4%	41.9 %	41.4 %	41.0 %	40.7 %	40.5 %	40.3 %	40.2 %

Source: CGE Model Simulation (2023).

Table 19: Change in unemployment rate, by skill category 2022–2030.

	2022	2023		2024	2025	2026	2027	2028	2029	2030
	Baseline									
Primary	42.7%	40.2%		37.5%	34.9%	32.1%	29.4%	26.5%	23.7%	20.8%
Middle	52.7%	52.3%		51.9%	51.5%	51.1%	50.8%	50.4%	50.0%	49.6%
Secondary	46.0%	47.3%		48.5%	49.8%	51.0%	52.2%	53.3%	54.5%	55.6%
Tertiary	22.2%	22.6%		22.9%	23.3%	23.7%	24.1%	24.5%	24.9%	25.2%
	Skill Formation Acceleration, Tertiary Education									
Primary	42.7%	40.2%		37.5%	34.9%	32.1%	29.3%	26.4%	23.5%	20.5%
Middle	52.7%	52.3%		51.9%	51.5%	51.1%	50.7%	50.2%	49.7%	49.3%
Secondary	46.0%	46.8%		47.6%	48.4%	49.2%	49.9%	50.6%	51.3%	52.0%
Tertiary	22.2%	23.8%		25.4%	27.0%	28.6%	30.1%	31.6%	33.1%	34.6%

Source: CGE Model Simulation (2023).

These relatively low economic growth rates combined with rising unemployment rates projected to have negative knock displayed above, contribute to generally benign effects on poverty and negative inequality outcomes. As shown in **Table 20**, the Gini index of inequality increases by 0.021 percentage points for 2023 to 2030, while poverty marginally declines by 1.3 percentage points (Upper-Bound Poverty Line), 1.2 percentage points (lower-bound poverty line) and 0.8 percentage points (food poverty line) over the same period.

Table 20: Change in poverty and inequality 2023–2030.

Scenario	Upper-bound poverty line (pp)	Lower-bound poverty line (pp)	Food poverty line (pp)	Gini index
Baseline	-1.2	-1.1	-0.8	0.021
SFA Tertiary	-1.3	-1.2	-0.8	0.021

Note: pp=percentage point.

Source: Micro-Simulation Model (2023).

3. The Skill Formation Acceleration Combined with Demand-Side Interventions

This more comprehensive SDG Push scenario now focuses on market supply and demand stimulation of the services and industry sector. The corresponding results are shown in **Tables 21** through to **Table 24**. Overall, the results show extremely promising results for achieving economic and employment SDGs compared to those reported in the preceding scenario, However, despite the good promise on the economic front, the poverty and inequality outcomes remain woefully shy of those envisaged by the corresponding SDG (see **Section 4** for more details). **Table 21** shows economic growth acceleration from 4 percent in 2023 to 7.4 percent under the combined scenario. According to **Table 22**, a substantial reduction of the unemployment rate by more than 13.4 percentage points, from 41.8 percent in 2023 to 28.3 percent by 2030, is observed. Finally, **Table 24** seeks to identify economic sectors and sub-sectors to target when operationalizing the SDG Push Strategy using demand stimulus as demand-side measures. This table is generated by simulating an economy-wide growth rate increase by 1 percentage point led by a total factor productivity increase of the selected industries. The rationale for South Africa is that quality employment is a substantial problem for relatively higher-skilled labor (relative to those with primary-level education skills (**Table 22**). Demand-side interventions are generally scarce, except for a motor vehicle subsidy and the more recent youth employment subsidies. Few employment programmes, particularly demand-side ones such as comprehensive wage subsidies, are rare. To design these programmes, it is necessary to identify which sectors are ideal for fostering higher skilled employment that is now in abundance (**Table 22**). Given all these points, it is particularly instructive to use a general equilibrium approach that identifies which sectors are suitable for a skilled labor wage subsidy programme that will create jobs for skilled labor. Indeed, the Government has developed skilled labor since the advent of democracy in 1994. The combined results show that personal and social service activities, transport, finance, and insurance can make the greatest contribution out of all the industries tested to reducing unemployment while increasing economic growth.[12] These sectors within services and industries can contribute to increasing overall productivity and reducing unemployment while also contributing to absorbing high number of highly educated skilled labor. Putting together a programme to stimulate these sectors would be economically viable. Despite all the efforts, inequality remains stubbornly high under this combined scenario, increasing by 0.034 percentage

[12] The rationale behind excluding government services from this list even when its performance compares favorably to identified sectors is of course that we are seeking from the intervention to stimulate private sector participation in the economy to assist the Government in achieving the committed SDGs (see Stakeholder Dialogue Report).

points from 2023 to 2030, while poverty marginally declines by about 3.8 percentage points (upper-bound), 3.4 percentage points (lower-bound) and 2.5 percentage points (food poverty line).

Table 21: Economic growth (GDP growth rate), 2023–2030

Scenario	2023	2024	2025	2026	2027	2028	2029	2030
Baseline	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.7%
SFA, Tertiary	1.7%	1.7%	1.7%	1.8%	1.8%	1.9%	1.9%	1.9%
SFA, Tertiary and *EGA, Services	4.5%	4.9%	5.2%	5.6%	5.9%	6.2%	6.5%	6.7%
SFA, Tertiary and EGA, Industry	4.0%	4.5%	4.9%	5.4%	5.9%	6.4%	6.9%	7.4%

Source: CGE Model Simulation (2023).

***Note**: SFA: Skill Formation Acceleration. Tertiary: Labor with tertiary education (certificates, diplomas, or degrees). Secondary: Labor completed secondary school education (grade 12). Middle: Labor with middle school education (grades 8–11). Primary: Labor with primary school education (grades 1–7). Economic Growth Acceleration (EGA).

Table 22: Unemployment rate, 2023–2030

Scenario	2023	2024	2025	2026	2027	2028	2029	2030
Baseline	42.4%	41.9 %	41.6 %	41.3 %	41.0 %	40.9 %	40.8 %	40.8 %
SFA Tertiary	42.4%	41.9 %	41.4 %	41.0 %	40.7 %	40.5 %	40.3 %	40.2 %
SFA, Tertiary and EGA, Services	41.5%	40.0 %	38.3 %	36.6 %	34.7 %	32.8 %	30.9 %	29.0 %
SFA, Tertiary and EGA, Industry	41.8%	40.4 %	38.9 %	37.2 %	35.2 %	33.1 %	30.7 %	28.3 %

Source: CGE Model Simulation (2023).

Table 23: Poverty and inequality 2023–2030

Scenario	Upper-bound poverty line (pp)	Lower-bound poverty line (pp)	Food poverty line (pp)	Gini index
Baseline	-1.2	-1.1	-0.8	0.021
SFA Tertiary	-1.3	-1.2	-0.8	0.021
SFA, Tertiary and EGA, Services	-3.7	-3.4	-2.5	0.034
SFA, Tertiary and EGA, Industry	-3.8	-3.4	-2.5	0.034

Source: CGE Model Simulation (2023).

Note: pp=percentage point.

Table 24: Sectors for targeting demand stimulus based on contribution to change in economic growth and in unemployment reduction.

Industry	Contribution to GDP	Annual change in total factor productivity (%)	GDP growth acceleration (percentage point)	Labor, all skill categories	Labor with primary school education (grades 1–7)	Labor with middle school education (grades 8–11)	Labor completed secondary school education (grade 12)	Labor with tertiary education
Personal and social service activities	**16.8%**	**5.0**	**1**	**-3.7%**	**-6.8%**	**-4.3%**	**-1.9%**	**-2.3%**
Transport	**9.7%**	**8.4**	**1**	**-3.3%**	**-2.7%**	**-2.8%**	**-3.4%**	**-4.9%**
Business activities	8.9%	15.0	1	-3.1%	-3.8%	-2.9%	-2.6%	-3.5%
Electricity and distribution of water	7.6%	14.3	1	-3.0%	-3.3%	-2.9%	-2.7%	-3.3%
Construction	5.1%	11.9	1	-2.9%	-3.0%	-2.8%	-2.7%	-3.6%
Financial and insurance	**4.6%**	**4.9**	**1**	**-2.9%**	**-2.7%**	**-2.7%**	**-2.8%**	**-3.9%**
Real estate activities	4.3%	13.7	1	-2.9%	-3.4%	-2.8%	-2.4%	-3.3%
Post and telecommunications	3.8%	46.0	1	-2.8%	-3.4%	-2.8%	-2.4%	-2.9%
Agriculture	2.9%	21.5	1	-1.9%	-1.2%	-1.7%	-2.0%	-2.9%
Mining of coal and lignite	2.5%	13.6	1	-1.8%	-2.1%	-1.5%	-1.6%	-2.5%
Mining of gold and uranium ore and metal ores	2.4%	13.6	1	-1.8%	-2.1%	-1.5%	-1.6%	-2.5%
Food industry	2.0%	23.7	1	-1.4%	-2.0%	-1.0%	-1.0%	-1.8%
Government	1.8%	4.8	1	-1.1%	-1.5%	-1.3%	-0.8%	-0.8%

Source: CGE Model Simulation (2023).

4. The Social Grants Scenarios

The scenarios are built on the following set of restrictions: (i) reduced headcount poverty index at 5 percent at the lower bound national poverty line; (ii) increased social grant amount to poor by 100 percent on average; (iii) increased income of poor by 30 percent on average; and (iv) unchanged socio-demographic attributes of poor households, i.e. household size, share of population by residential types, and share of population by provinces. The Conditional Social Grant scenario includes an additional restriction on increased economic active of poor or beneficiary individuals.

Participation in economic activities

The rate of participation in economic activities is different between poor and non-poor individuals. On average, 64 percent of poor individuals are economically active against 72 percent for non-poor individuals. Thus, under this scenario, beneficiaries of social grants are conditional upon participating more in the economy. The economic participation restriction is imposed on all adult grantees. Thus, implicitly, this scenario envisages a 10 percent increase of labor supply for all skill categories. **Table 25** shows the results.

Table 23: Participation in economic activities

	Poor	Non-poor
All	64%	72%
Primary	57%	65%
Middle	58%	62%
Secondary	86%	83%
Tertiary	77%	57%

Source: National Income Dynamics Study 2017.

Output variables.

Social grants affect beneficiaries' consumption and supply behaviors. Expenditure on food and non-food products and supplies of various labor categories (i.e. primary, middle, secondary and tertiary education) are computed from the micro-simulation model under each of the two scenarios (unconditional and conditional) and fit into the CGE model.

The results of the Social Grants Scenario are now discussed, and this is done in two steps. First, the effects of increased social grant on consumption of products and supplies of labor are discussed. These effects are produced by the MS model and designated the 'direct effects' of increased social grants. Second are the macroeconomic effects of real cost financing of the scenario. The latter are then discussed in the following sub-section on economic and fiscal cost of the scenario.

Changes in poverty and inequality measures (**Table 24**) show that the poverty headcount rate at the lower-bound poverty line is set at 5 percent in both unconstrained and constrained scenarios. In parallel, food poverty declines to the same extent, displaying a strong correlation between the two measures of

poverty, i.e. individuals that are poor at the lower poverty line are more likely to be poor at the food poverty line. In 2015, the lower-bound poverty line and food poverty line were set at ZAR 9,096 and ZAR 6,372, respectively. The poverty head count rate at the higher bound poverty line (i.e. ZAR 13,656) remains unchanged, at 56.1 percent in both scenarios. Income inequality, measured by the Gini index, declines from 0.670 to 0.614 in both unconstrained and constrained scenarios.

Table 24: Poverty and inequality measures, by scenario

	Base (2017)	Unconstrained	Constrained
Poverty line, higher bound	0.561	0.561	0.561
Poverty line, lower bound	0.420	**0.050**	**0.050**
Poverty line, food	0.293	0.049	0.046
inequality, Gini index	0.670	0.614	0.614

Source: Compilation of simulation results (2023).

Table 25 shows that under the unconstrained scenario, the economic activity of grant beneficiaries declines by 33 percent. There is a decline for all skill categories, but the decline is more pronounced for individuals holding a secondary school education level. The latter display the largest decline (-52.7 percent) while constituting the largest proportion of the economically active population (43.8 percent).

Under the constrained scenario, economic activities of beneficiaries are set to increase on average by 10 percent for all categories, except individuals with a tertiary school education.

Table 25: Changes in the economic activity of beneficiaries, by skill level and scenario

	Initial share	Scenario	
		Unconstrained	Constrained
All education levels	**100.0**	**-0.330**	**0.103**
Primary school education	15.4	-0.494	0.108
Middle school education	40.4	-0.161	0.102
Secondary school education	43.8	-0.527	0.104
Tertiary school education	0.4	-0.986	0.080

Source: Compilation of simulation results (2023).

Table 26 shows changes in household consumption expenditure. Here, the results show that consumption of food and non-food products increase under both the unconstrained and constrained scenarios. Interestingly, the results on consumption differ, depending on whether the labor supply faces restrictions. Thus, consumption of food products increases more slowly than non-food products under the unconstrained scenario, i.e. consumption of food (non-food) products is inelastic (elastic) with respect to income. Under increased labor supply restriction, total consumption expenditure increases more slowly than in the unconstrained scenario. While food consumption expenditure continues to increase at a faster pace, non-food consumption expenditure increases at a much slower pace.

Table 26: Change in household final consumption, by scenario.

	Initial share	Unconstrained	Constrained
All products		**0.744**	**0.675**
Food products		0.678	0.696
Non-food Products		0.817	0.651
Tertiary school education	0.4	-0.986	0.080

Source: Compilation of simulation results (2023).

Effects on public finances of the Social Grant Scenario can be gleaned from **Table 27,** which are derived under an assumption of constant prices. Estimates with changes in relative prices given by the macro model are discussed under macroeconomic effects. Note that the estimates shown the table are in current prices and need to be adjusted by the inflation rate.

Table 27: Poverty alleviation social grants and South Africa public finances

Description	Data	Source
1. South Africa population (2021)	59.39 million people	World Bank
2. Poverty head count ratio at lower-bound poverty line (2017)	42.0%	NIDS 2017
3. Population below the national poverty line	24,943,800 people	(1) x (2)
4. Poverty alleviation transfer, average amount per individual	SAR 4,020	NIDS (2017)
5. Poverty alleviation transfer, total amount	SAR 100.3 billion	(3) x (4)
6. Exchange rate, ZAR per US dollar (2021)	14.8	World Bank
7. Poverty alleviation transfer, total amount	US$6.8 billion	(5)/ (6)
8. Current GDP (2021)	US$419.02 billion	World Bank
9. Poverty alleviation transfer, ratio GDP (2021)	1.623%	(7)/ (8)
10. Public expenditure (2021)	US$138.19	World Bank
11. Poverty alleviation transfer, ratio public expenditure (2021)	4.921%	(7)/ (10)

The economic and fiscal cost of the Social Grants SDG Push scenario

Tables 28 through to **30** sheds light on the mechanisms through which the SDG Push policy package affects the economy and its public finances. Impacts are the net effect of three transmission channels, namely: an increase(decrease) in labor supply (**Table 28**); an increase in expenditure on food and non-food products (**Table 29**); and an increase government deficit **Table 30**). The decrease/increase in labor supply works through decrease (increase) in: (i) expected wages rates; (ii) output level (supply of products); and (iii) output prices. The mechanism of expenditure on the food and non-food products transmission channel is through increases in final demand for food and non-food products as well as output prices. Finally, the increase of the government deficit mechanism is translated into: (i) an increase in internal debt (financing mechanism assumption); (ii) a decrease in private savings (crowding-out effect); (iii) a decrease in investment; (iv) a decrease in output prices (short-term); and (iv) an increase in output prices (long-term).

Table 31 shows a decline in the annual GDP growth rate under the Conditioned Social Grant Scenario. This result can be traced to the observation that the transmission of savings into private investment, as shown in **Tables 32** and **33,** tends to lower or *crowd out* economic growth prospects.

Under the unconditional Social Grant Scenario, results show a further increase of public deficit and a decrease of aggregate investment (**Tables 28** and **29**). The decrease in labor supply witnessed earlier in **Table 25** increased direct economic costs through two channels of transmission: increased wage cost; and reduced job and economic opportunities to increase income for the grantees (graduation), thus increasing the social grant cost (**Table 29**). The decline in GDP growth accelerates to 2.7 percentage points per year, i.e. 22.8 percentage points over the 2023–2030 period (**Table 30**).

Table 28: GDP growth (%)

Scenario	Annual average	Period (2023–2030)
Baseline	1.7	14.8
Social grants, conditional	0.9	7.5
Social grants, unconditional	-1.0	-8.0

Table 29: Social grant expenditures, ratio to government revenue

Year	Social spending, unconditional	Social spending, conditional
2023	1.8%	0.6%
2024	3.6%	1.2%
2025	5.3%	1.8%
2026	7.2%	2.5%
2027	9.1%	3.3%
2028	11.1%	4.2%
2029	13.4%	5.1%
2030	16.0%	6.2%

Table 30: Change in aggregate investments.

Year	Baseline	Social spending, unconditional	Social spending, conditional
2023	3.4%	-5.2%	1.0%
2024	3.5%	-6.6%	0.4%
2025	3.6%	-8.4%	-0.1%
2026	3.9%	-10.8%	-0.6%
2027	4.1%	-14.4%	-1.4%
2028	4.5%	-19.9%	-2.1%
2029	4.8%	-29.6%	-3.2%
2030	5.1%	-50.4%	-4.7%

Finally, **Table 31** shows changes in labor supply and demand, resulting in unemployment in both the unconditional and the conditional scenario. Under the conditional scenario, social spending on unemployment increases by 8.1 percent, a result driven by a higher labor supply increase of 13.7 percent compared to a demand of 6.3 percent. Conversely, unemployment is higher under the unconditional scenario, at 9.1 percent, because labor supply decline is far higher than the corresponding decline in demand, at 10.5 percent. (Note: these are negative numbers or a decline in growth rates.)

Table 31: Labor supply, employment, and unemployment, 2023–2030

	Supply	Demand	Unemployment
Baseline	6.8%	12.2%	-9.8%
Social Spending, conditional	13.7%	6.3%	8.1%
Social Spending, unconditional	-0.3%	-10.5%	9.1%

Summing up the public financing results, it has been observed that with the Social Benefit of Poverty Alleviation Social Grants, 25 million South Africans are lifted out of poverty (using the lower-bound poverty line and the food poverty line). Inequality declines by 8.35 percent. The economic costs under government financing are direct and indirect. Direct costs translate into US$6.5 billion per year on average (US$52 billion, 2023–2030). The indirect costs are an annual GDP growth rate – i.e. a reduction of 0.8 percentage points (US$3.5 billion)

The contribution of the SDG Stimulus is summarized in **Tables 32**–**35**. The SDG Stimulus neutralizes the GDP growth effect over 2023–2030, i.e. similar GDP growth rates under SGD stimulus scenarios (**Table 33**). The cost of the Social Grants Scenario is 2.63 times higher under the unconstrained scenario than under the constrained scenario. In both scenarios, a substantial contribution of SDG Stimulus (approximately 80 percent on average) is needed to wipe out the negative economic growth impact (**Table 32**).

Table 32: Funding requirements, by source, US$ billion 2021 constant price

Funding source	Unconstrained scenario		Constrained scenario	
	Annual average	Period 2023–2030	Annual average	Period 2023–2030
SDG stimulus	14.1	112.7	5.2	41.4
Government contribution	3.0	23.8	1.3	10.5
Total	**17.1**	**136.5**	**6.5**	**51.9**

In terms of the distribution across sectors, industry (with an annual value-added loss of -1.3 percentage points on average) is the most adversely impacted, followed by services (with annual value-added loss of -0.7 percentage points on average) and then agricultural (with value-added remaining unchanged) (**Table 33**). The agricultural sector performance is relatively better, since poor households contribute 21 percent to total food consumption, against 5 percent for non-food products (**Table 34**). The increase in food and non-food consumption expenditure is likely to increase food demand more than non-food demand. The demand for industrial goods, which contribute 93.6 percent of investment products, is affected by the decline in aggregate investment discussed earlier. The SDG Stimulus, which translates into 80 percent of the financing contribution, contributes to putting the industrial and services sectors back on their baseline trajectories, while agricultural growth accelerates.

Table 33: GDP growth under the SDG Stimulus (%)

Scenario	Annual average	Period (2023–2030)
Baseline		
GDP	1.7	14.8
Value-added, agriculture	2.5	22.1
Value-added, industry	1.5	12.8
Value-added, services	2.0	17.4
Conditional social grants, under government financing		
GDP	0.9	7.5
Value-added, agriculture	2.4	20.7
Value-added, industry	0.2	1.2
Value-added, services	1.3	10.9
Conditional Social Grants, with the SDG Stimulus		
GDP	1.7	14.8
Value-added, agriculture	3.1	27.2
Value-added, industry	1.3	10.6
Value-added, services	2.0	17.5

Table 34: Households contribution to food and non-food expenses (2021)

	Food	Non-food	All
Poor households	20.7%	5.2%	9.0%
Non-poor households	79.3%	94.8%	91.0%
All households	100.0%	100.0%	100.0%

Source: 2021 SAM.

Compared to the baseline, food, and non-food consumptions of non-beneficiary households (i.e. initially non-poor households) decline under the government financing option (**Table 35**). The SDG Stimulus contributes to compensating for the loss of non-beneficiary households.

Table 35: Changes in household consumption, 2023–2030

	Food	Non-Food	All
Baseline			
Poor households	14.7%	20.6%	17.7%
Non-poor households	11.1%	12.9%	12.6%
All households	**11.9%**	**13.3%**	**13.1%**
Conditional Social Grants, under government financing			
Poor households	69.9%	65.5%	67.7%
Non-poor households	6.2%	5.1%	5.3%
All households	**20.6%**	**8.4%**	**10.7%**
Conditional Social Grants, with the SDG Stimulus			
Poor households	70.0%	65.6%	67.7%
Non-poor households	10.6%	12.9%	12.5%
All households	**24.0%**	**15.7%**	**17.3%**

Appendix IV: Results Based Assessment - reduced SDG result framework.

SDG Goal	Indicator	Target	Baseline	BaU	SS1	SS2	SS3	SS4
1	Eradicate extreme poverty (1.1.1)	<5%	42.5% (2015)	40.1 %	40.0 %	39.1 %	39.1 %	5%
	Halve population below national poverty line (1.2.1)	-50%	55.5% (2015)	- 1.2%	- 1.3%	- 3.7%	- 3.8%	-3.8
	Population covered by social protection floors / systems (1.3.1)	>	-	-	>	>	>	>
	Government spending on essential services (1.a.2)	>	-	-	>	>	>	>
2	Prevalence of undernourishment (2.1.1) *	<5%	25.2	25.0 %	25.0 %	24.6 %	24.6 %	5%
	Income of small-scale food producers (2.3.2) **	100%	0%	20.0 %	20.9 %	41.1 %	47.7 %	52.8 %
4	Completion rate, primary, lower, and upper secondary education)	100%	-	>	>	>	>	>
8	GDP growth rate (8.1.1)	7%	1.7%	1.7%	1.9%	6.0%	6.0%	7.4%

	GDP growth rate per employed person (8.2.1)	>	0%	-0.1%	0.1%	4.3%	4.4%	4.4%
	Hourly earnings (8.5.1)	>	0%	-0.1%	-0.3%	0.2%	0.2%	-0.1%
	Unemployment rate (8.5.2)	<5%	42.2%	40.8%	40.2%	29.0%	28.3%	28.3%
9	Manufacturing value added as a proportion of GDP and per capita (9.2.1)	>	0%	-2.3	-2.2	-12.0	12.7%	10.2%
10	Growth rates of household expenditure or income per capita among the bottom 40 percent of the population and the total population (10.1.1) ***	>	0%	<	<	<	<	>

Note: **BaU** – Business as usual; **SS1**– Tertiary skill formation acceleration; **SS2** – Tertiary skill formation acceleration and service sector development; **SS3** – Tertiary skill formation acceleration and industrialization; **SS4** – Tertiary skill formation acceleration, industrialization, and social grant expansion (i.e. with SDG stimulus).

*Food Poverty; **Agricultural value-added growth.; *** Based on changes in Gini index measure.

On-track (target value reaches 90 percent or more)
Off-track - good progress (target value reaches between 50 percent and 90 percent)
Off-track - slow progress (target value reaches between 10 percent and 50 percent)
Off-track - no progress (target value reaches below 10 percent).

Appendix V: Calibration of the consumption parameters

Labor supply equation

$$L_{h,l} = \underline{H_{h,l}^{max}} - \frac{\beta_{h,l} \cdot \left(Y_h - P^{fd} \cdot \underline{CFD_h^{min}} - P^{nn} \cdot \underline{CNN_h^{min}}\right)}{W_l \cdot \left(1 - \sum_l \quad \beta_{h,l}\right)}$$

Demand for food products.

$$CFD_h = \underline{CFD_h^{min}} + \frac{\alpha_h^{fd} \cdot \left(Y_h - P^{fd} \cdot \underline{CFD_h^{min}} - P^{nn} \cdot \underline{CNN_h^{min}}\right)}{P^{fd} \cdot \left(1 - \sum_l \quad \beta_{h,l}\right)}$$

Demand for non-food products.

$$CNN_h = \underline{CNN_h^{min}} + \frac{\alpha_h^{nn} \cdot \left(Y_h - P^{fd} \cdot \underline{CFD_h^{min}} - P^{nn} \cdot \underline{CNN_h^{min}}\right)}{P^{nn} \cdot \left(1 - \sum_l \quad \beta_{h,l}\right)}$$

The approach by *De Melo and Tarr (1992)* derives the maximum time available for work and leisure from the formula of elasticity of labor supply with respect to income.

$$\varepsilon_{h,l} = \frac{\beta_{h,l} \cdot Y_h}{W_l \cdot L_{h,l} \cdot \left(1 - \sum_l \quad \beta_{h,l}\right)}$$

$$\beta_{h,l} = \frac{\varepsilon_{h,l} \cdot W_l \cdot L_{h,l}}{\sum_l \quad \left(\varepsilon_{h,l} \cdot W_l \cdot L_{h,l}\right) - Y_h}$$

$$\underline{H_{h,l}^{max}} = L_{h,l} + \left(\frac{\beta_{h,l}}{W_l \cdot \left(1 - \sum_l \quad \beta_{h,l}\right)}\right) \cdot \left(\frac{-Y_h}{Frisch_h}\right)$$

The elasticity of demand for food products with respect to income is used to calibrate the parameters of the food demand equation.

$$\varepsilon_h^{fd} = \frac{\alpha_h^{fd} \cdot Y_h}{P^{fd} \cdot CFD_h \cdot \left(1 - \sum_l \quad \beta_{h,l}\right)}$$

$$\alpha_h^{fd} = \frac{\left(1 - \sum_l \quad \beta_{h,l}\right) \cdot \varepsilon_h^{fd} \cdot P^{fd} \cdot CFD_{h_i}}{Y_h}$$

$$\underline{CFD_h^{min}} = CFD_h + \left(\frac{\alpha_h^{fd}}{P^{fd} \cdot \left(1 - \sum_l \quad \beta_{h,l}\right)}\right) \cdot \left(\frac{-Y_h}{Frisch_h}\right)$$

The elasticity of demand for non-food products with respect to income is used to calibrate the parameters of the non-food demand equation.

$$\varepsilon_h^{nn} = \frac{\alpha_h^{nn} \cdot Y_h}{P^{nn} \cdot CNN_h \cdot \left(1 - \sum_l \quad \beta_{h,l}\right)}$$

$$\alpha_h^{nn} = \frac{\left(1 - \sum_l \quad \beta_{h,l}\right) \cdot \varepsilon_h^{nn} \cdot P^{nn} \cdot CNN_{h_i}}{Y_h}$$

$$\underline{CNN_h^{min}} = CNN_h + \left(\frac{\alpha_h^{nn}}{P^{nn} \cdot \left(1 - \sum_l \quad \beta_{h,l}\right)}\right) \cdot \left(\frac{-Y_h}{Frisch_h}\right)$$

Demand for individual food commodities.

$$P_{ifd} \cdot C_{h,ifd} = \delta_{h,ifd} \cdot P^{fd} \cdot CFD_h$$

Demand for individual non-food commodities.

$$P_{inn} \cdot C_{h,inn} = \delta_{h,inn} \cdot P^{nn} \cdot CNN_h$$

With *i= {ifd, inn}*

Appendix VI: Caveats to the Analysis

Certain caveats to the analysis in this paper are in order.

The results presented need to be interpreted with care, as they are subject to uncertainty and depend on modelling assumptions, including:

I. Baseline developments

II. The rate of technological development

III. The costs of social grants interventions

IV. The scenario design, and specifically the data and information-sources used to model the different policy instruments – both nationally and provincially.

Given that this report presents a first analysis of the economic and fiscal consequences of the SDG Push, several additional developments on this issue can be envisaged:

I. The national analysis presented in this report can be followed by more detailed analyses for specific regions (provinces, municipalities, and other magisterial districts).

II. While not the focus of this report, climate policies with a commitment to achieve carbon neutrality by 2050 can also be modelled as part of the SDG Push. This work should also focus on environmental justice (including a Just Energy Transition) in the context of a just transition: and

III. Trade-related issues related to the implementation of[13] different trade policy instruments are a fruitful area left for future analysis and could tie into the broader SDG Push discussion on the interlinkages between trade and climate change.

[13] Examples of these analyses for the EU and its respective regions include Dellink et al. (2017).

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