

KEY QUESTIONS

What are the key macroeconomic impacts of the third phase of the EPWP?

What are the key social impacts of the third phase of the EPWP?

Does the EPWP III affect inequality in South Africa?

What is the impact of the EPWP III on poverty?

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Paving a road to higher economic growth with EPWP

As a response to high and persistent levels of unemployment, the Expanded Public Works Programme (EPWP) was launched in South Africa in 2004 following the Growth and Development Summit of 2003. The Programme provides short-term employment at low wages for unskilled and semi-skilled workers on labour-intensive projects in the infrastructure, environment, social and economic sectors. It aims to provide the unemployed with an opportunity to work and an avenue to contribute to the development of their communities.

Phase 1 of the EPWP, which was implemented from 2004 to 2009, targeted the creation of one million work opportunities, which was achieved one year ahead of schedule.

The goal of Phase 2 of the EPWP (2009-2014) was to create two million Full Time Equivalent (FTEs) or 4.5 million part-time work opportunities for the poor and the unemployed and thus contribute towards halving unemployment in the country by 2014. By the end of Phase 2, the Programme created more than 4 million work opportunities and 1.1 million FTE's.

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KEY FINDINGS

- EPWP III positively contributes to economic growth
- The Programme's contributions to real GDP are estimated to gradually grow beyond annual direct injections
- EPWP III helps lower the unemployment rate in South Africa
- The implementation of the Programme improves the poverty rate and poverty gap in the country
- EPWP III decreases income inequality
- EPWP III does not harm macro-economic balance

Phase 3 of the Programme (EPWP III), which was launched in 2014, targets over 1 million job opportunities every year between 2015 and 2019. In Phase 3, a Presidential Public Employment Coordination Commission has been established to enhance coordination across public employment programmes in the country. This new initiative necessitates a better understanding of the potential impacts of the current phase of EPWP on the macro-economy, employment and poverty.

This issue of The Bridge is dedicated to the presentation of the simulation results of EPWP III scenarios. We have used the Dynamically Integrated Macro-Micro Simulation Model of South Africa (DIMMSIM), which is one of six economic models of South Africa built by ADRS. It captures the interactions between the economy-wide macro-econometric model and a microsimulation model of household taxes, transfers, poverty, and inequality.

“The EPWP III aims to provide the unemployed with an opportunity to work and an avenue to contribute to the development of their communities.”

EPWP Policy Scenarios

Two policy scenarios are used, one to capture the current EPWP III and an alternative scenario of No-EPWP III for the period 2015-2019. The following table presents details of the two scenarios (Table 1). Comparison of simulation results from the two scenarios quantifies the potential contribution of EPWP III to South African economic growth and development for the period.

TABLE 1: POLICY SCENARIOS

Title	EPWP III Current Scenario	No EPWP III Alternative Scenario
Context	Phase III of the EPWP is implemented from 2015-2019 to provide short term employment at low wages for unskilled and semi-skilled workers.	Phase III of the EPWP is not implemented.
Description	EPWP III targets over 1 million job opportunities every year between 2015 and 2019. The total number of job opportunities is 1,045,519 in 2015 and will increase to 1,455,840 by 2019. The sectoral breakdown of total job opportunities is 40% infrastructure and 60% community service jobs. The duration for infrastructure jobs is 75 days, while community services jobs have a duration of 100 days. Daily remuneration for all jobs will start at R75 per day in 2015. Administration costs average R35,730 per job opportunity in 2015. All remunerations and inclusive overhead costs are adjusted to an average annual inflation rate of 6 percent over the period.	This scenario examines ‘what if’ there is no EPWP III during the period 2015-2019? It uses the model to simulate the performance of the economy without the EPWP III for the period.

Model Simulation Key Results

Macroeconomic Impact

Model results for EPWP III and No-EPWP III scenarios illustrate three key macroeconomic findings. EPWP III raises economic growth, lowers annual unemployment rates, and maintains macroeconomic balances.

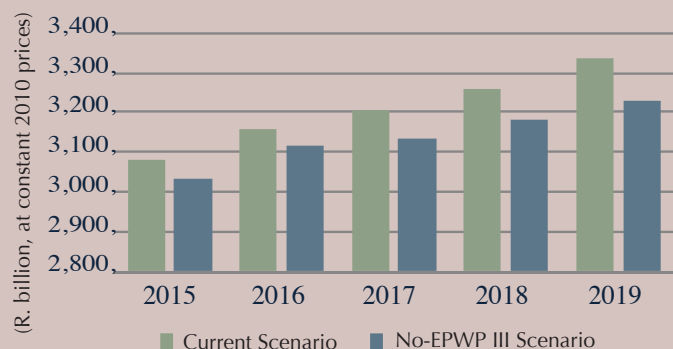
Relative to the No-EPWP scenario, the model projections show higher average annual real GDP growth rates for the EPWP III scenario (Fig 1). Specifically, the average annual growth rate for 2015-2019 will be 0.64 percent higher with EPWP III, which is especially significant given the current low growth path of the economy. This result reflects the interplay of two dynamic forces in the economy.

First, EPWP III directly raises the income of between 1 to 1.5 million individuals and their families and significantly increases spending on goods and services (e.g., training, equipment, and administration) to support the Programme (Fig 2 & 3). Overall, the Programme's estimated annual real (2010 prices) injection into the economy ranges between R32.4 billion (2015) and R44.6 billion (2019). Associated with this spending on EPWP is an increase

in household consumption expenditure and government expenditure on goods and services, which together positively shift the aggregate spending (demand) in the economy.

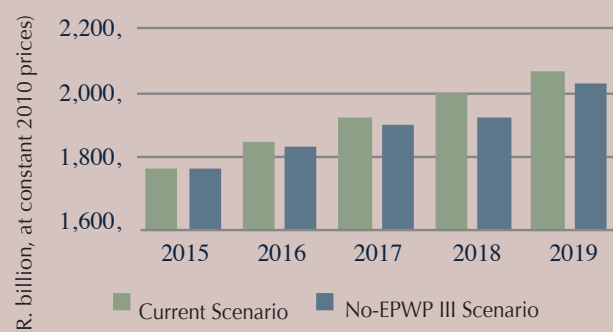
Second, relative to the No-EPWP scenario, the Programme's direct annual addition of between 410,000 and 570,000 full time equivalent workers in the service sectors of the economy directly expands outputs of these sectors and indirectly increases outputs of sectors with forward and backward linkages to the service sector (e.g., manufacturing sector), thus positively shifting the overall aggregate supply. The outward shifts of both the aggregate demand and aggregate supply help realign the economy at a higher level of output (GDP) (Fig 1). Therefore, over the course of the EPWP III (2015-2019) and relative to the No-EPWP scenario, the additions to the real GDP are estimated to gradually grow beyond the EPWP's estimated annual injections. In 2015, the Programme's contribution to the

FIG 1: REAL GDP GROWTH PATH



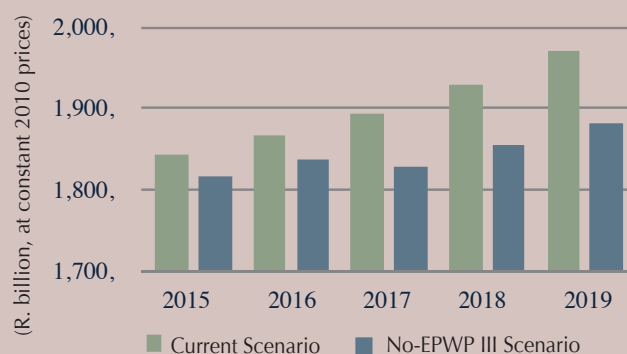
Source: ADRS Dynamically Integrated Macro-Micro Model of South Africa (DIMMSIM). www.ADRS-Global.com

FIG 2: HOUSEHOLD REAL GROSS DISPOSABLE INCOME



Source: ADRS Dynamically Integrated Macro-Micro Model of South Africa (DIMMSIM). www.ADRS-Global.com

FIG 3: HOUSEHOLD CONSUMPTION EXPENDITURE

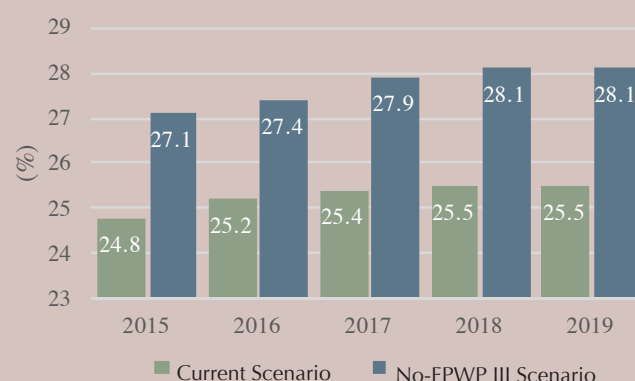


Source: ADRS Dynamically Integrated Macro-Micro Model of South Africa (DIMMSIM). www.ADRS-Global.com

GDP is projected to be 37.5% higher than its total cost. Due to the above dynamic impact of the EPWP, by 2019 the contribution of the Programme to the GDP is projected to be 1.4 times higher than the total cost in 2010 prices.

The implementation of EPWP III coincides with persistent high unemployment rates and weak economic growth. In this context, the direct addition of between

FIG 4: EPWP III AND UNEMPLOYMENT RATE



Source: ADRS Dynamically Integrated Macro-Micro Model of South Africa (DIMMSIM). www.ADRS-Global.com

410,000 (2015) and 570,000 (2019) full time equivalent jobs through EPWP III is projected to cushion the economy from weakening further. The model's simulation of the No-EPWP III scenario reflects the likely performance of the economy during 2015-2019 if EPWP III is not implemented and not replaced by a similar public job creation programme. The model estimates that during each forecast year, the unemployment rate associated with the EPWP III scenario will be lower than the

TABLE 2: ABOUT ADRS' EPWP MODEL

The EPWP module of DIMMSIM lets users define alternative scenarios for the programme based on values specified for parameters related to EPWP Job Opportunities, Job Expenses, and Job Durations.

Job Opportunities:

Users can:

- define specific annual targets for EPWP job opportunities or define the annual target based on a percentage of the unemployed pool.
- use different targets or percentage rates for EPWP job opportunities for each year of the forecast.
- specify the urban and rural shares of total EPWP jobs for each year of the forecast
- specify the allocation of EPWP jobs between Infrastructure jobs and Community Services jobs, which combine environmental and social jobs.

Job Expenses:

Includes five parameters, which are broken down into three categories: remunerations per day for Urban and Rural Infrastructure jobs, remuneration per day for Urban and Rural Community Services jobs, and average overhead cost per EPWP job. Users may either accept the Job Expenses' default parameter values for each year of the forecast or enter new values.

Job Durations:

The Job Durations category includes two parameters: average number of days for Infrastructure jobs, and average number of days for Community Services jobs. Users may either accept the parameters' default values for each year of the forecast or enter new values.

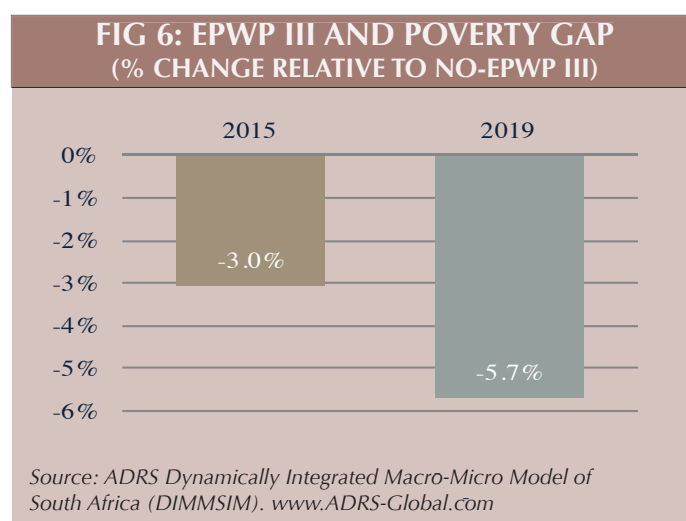
No-EPWP III scenario (Fig 4). In 2019, the level of unemployment associated with the EPWP III scenario is projected to be 2.5 percent lower than the results for the No-EPWP scenario.

A comparison of scenario results in terms of the performance of indicators such as the inflation rate and fiscal and trade indicators (deficit, debt, and current account GDP ratios) shows small differences between the two scenarios without threatening the sustainability of macroeconomic balances.

Poverty and Inequality Effects of EPWP III

Three key findings related to the poverty and inequality effects of EPWP III were identified from the model results. Relative to the No-EPWP III scenario, the projections show that EPWP III reduces headcount poverty, the depth of poverty and income inequality.

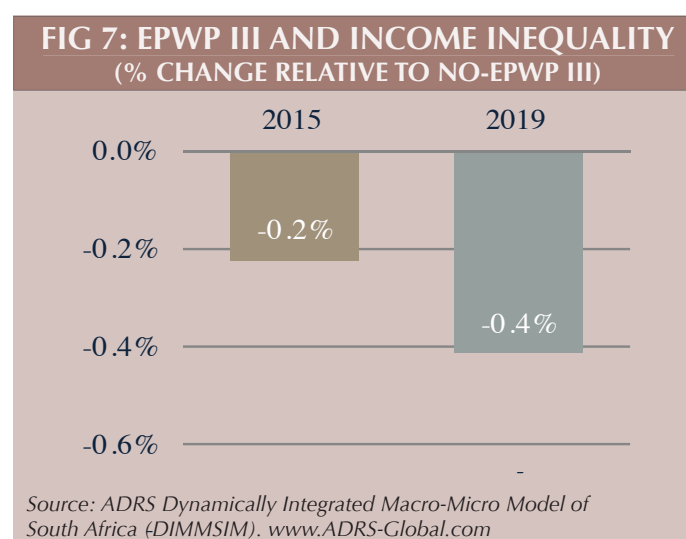
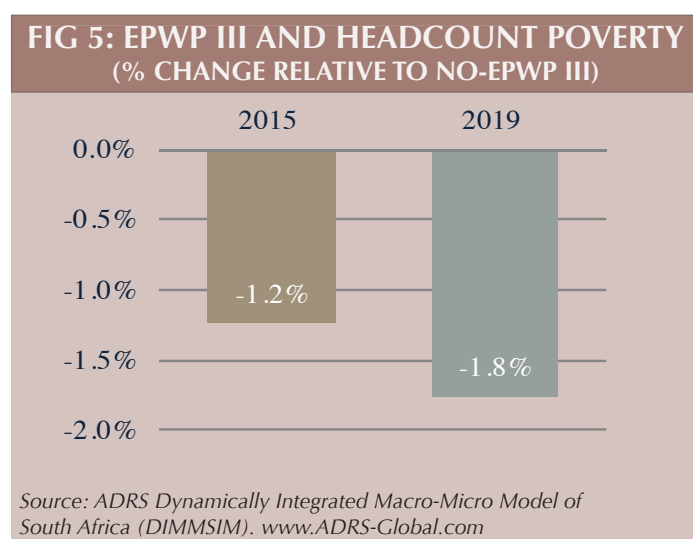
EPWP III directly raises the income of between 1 to 1.5 million individuals and their families. The model's estimates for headcount poverty shows that relative to No-EPWP III scenario, poverty under the EPWP III scenario will decrease by 1.2%



(2015) and 1.8% (2019), as shown in the figure below (Fig 5).

The policy is even more effective in reducing the depth of poverty in the country. With EPWP III, the model's projections show that the poverty gap (a measure of the depth of poverty) will be lower by between 3 and 5.7 percent relative to the No-EPWP III scenario (Fig 6). Similarly, relative to the No-EPWP III scenario, income inequality is projected to improve under the EPWP III scenario, as shown by relatively lower Gini-indices for 2015 and 2019 (Fig 7).

Finally, the model results show that the effectiveness of EPWP III to reduce



poverty and income inequality increases over time due to the longer term dynamic impact of the policy. This is shown by higher percentage reductions in the poverty rate, poverty gap and Gini-index in 2019 relative to 2015.

Conclusions

Model results show that EPWP III will clearly help South Africa's economic growth and development during the period 2015-2019. Without the Programme, economic growth will be lower and the unemployment rate, poverty and inequality will be higher. The simulations of the two scenarios show that the growth path that underlies the EPWP III scenario is expected to benefit the poor more than the non-poor – though only by small percentage points. Despite the policy's demonstrable contribution in terms of reducing poverty and inequality, it is not a silver bullet to fully overcome the three prong challenges of high poverty, inequality and unemployment in the country.

Key Findings

Careful analysis of the model results reveals six key findings.

1. EPWP III positively contributes to economic growth by causing outward shifts of both the aggregate demand and aggregate supply.
2. The Programme's contributions to real GDP are estimated to gradually grow beyond the annual direct injections.
3. EPWP III helps lower the unemployment rate in South Africa.
4. The implementation of the Programme improves the poverty rate and poverty gap in the country.
5. EPWP III decreases income inequality.
6. EPWP III does not harm macro-economic balance.

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is an independent economic consultancy organization with extensive experience in economic model building, capacity building, policy research, and advisory services in Africa. Our innovative web-based interface gives users the power to design policies and test their impact prior to embarking on implementation.

THE BRIDGE is an ADRS policy brief designed to present the main findings of policy simulations on key development challenges. With each issue we present the quantification of policy options in order to support evidence-based policy decision-making and to contribute to current economic policy analysis and debate.

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ADRS MODELS OF THE SOUTH AFRICAN ECONOMY

BRIDGING RESEARCH AND DEVELOPMENT

Appplied Development Research Solutions (ADRS) has developed six economic models of South Africa that interested individuals and institutions can use for projections, policy design and impact analyses. The models include a highly disaggregated macroeconometric model, two tax and transfer microsimulation models of households, a linked macro-micro model, and two linked national-provincial models of South Africa. Following is a brief description of each model:

MACROECONOMETRIC MODEL OF SOUTH AFRICA (MEMSA)TM

This model captures the complex inter-linkages that exist between and within industrial sectors of the economy, macro-economic variables, policy variables, and income and expenditure of government, labour, and business. MEMSA is a bottom up disaggregated model with 7 estimated variables for 41 sectors of the economy. It is most suitable for forecasting and simulating the impact of domestic and international shocks, macroeconomic and industrial policy changes, major public expenditure projects, as well as policies that affect private businesses, government and household income and expenditure. MEMSA is hosted at the ADRS website and is accessible through its user-friendly platform.

SOUTH AFRICAN TAX AND TRANSFER SIMULATION MODEL (SATTSIM)TM

ADRS has built this microsimulation model of South Africa for the projection of costs and benefits of current and future tax and transfer policies. Users of the model can design simple or complex tax and transfer policies for the next 15 years and assess their budgetary, poverty and income distribution effects. Model results are presented in aggregate and disaggregated forms, i.e., by gender, family type, quintile, province, and locality. In addition to a direct and an indirect tax modules, the model includes modules for current social security programmes (i.e., old age grant, child support, disability grant, and care dependency grant), and five additional grant programmes (i.e., care giver support, the basic income grant, youth grant, unemployment grant and adult grant) that are not currently part of the social security system in South Africa but can be used to develop 'what if' scenarios. SATTSIM is hosted at the ADRS website and is accessible through its user-friendly platform.

ADRS MODELS

- **MEMSATM: Macroeconometric Model of South Africa**
- **SATTSIMTM: South African Tax and Transfer Simulation Model**
- **SATTSIM-PlusTM: Augmented South African Tax and Transfer Simulation Model**
- **DIMMSIM-SATM: Dynamically Integrated Macro and Micro Simulation Models of South Africa**
- **LNP-MacroTM: Linked National-Provincial Macroeconometric Model of South Africa**
- **LNP-MMTM: Linked National-Provincial Macro-Micro Model of South Africa**

MEMSA

SATTSIM

SATTSIM

Plus

DIMMSIM-SA

LNP-Macro
& LNP-MM**AUGMENTED SOUTH AFRICAN TAX AND TRANSFER SIMULATION MODEL (SATTSIM-Plus)TM**

This model is an extension of SATTSIM. It allows users to produce projections of the tax revenue, social security beneficiaries and cost, and poverty and income distribution under alternative scenarios for the performance of macroeconomic indicators (e.g., growth, employment, inflation, and wage rate) over the next 15 years. Or, for a given scenario for the future performance of the South African economy (e.g., low or high economic growth during next three years), users can make changes to the social security and tax system and simulate their impact on the rate of poverty and income inequality. SATTSIM-Plus is hosted at the ADRS website and is accessible through its user-friendly platform.

DYNAMICALLY INTEGRATED MACRO AND MICRO SIMULATION MODELS OF SOUTH AFRICA (DIMMSIM-SA)TM

This model integrates the ADRS macroeconomic model (MEMSA) with its household microsimulation model (SATTSIM) to capture the dynamic interactions between the macroeconomic performance and the poverty and income distribution at household level. The model is most suitable for the analysis of poverty and inequality and for the impact analyses of alternative macro and micro policies for growth and development. It includes two-way interactions between its macro and micro components such that (a) changes in macroeconomic variables (e.g., prices, employment, wage rates, benefits, transfers, etc.) influence the welfare of individuals and families, and (b) changes in household level economic conditions (e.g., poverty, inequality, consumption, taxes, eligibility for social grant, etc.) influence macroeconomic outcomes. DIMMSIM-SA is hosted at the ADRS website and is accessible through its user-friendly platform.

DIMMSIM-SA is most suitable for the impact analyses of alternative macro and micro policies for growth and development.

LINKED NATIONAL-PROVINCIAL MACROECONOMETRIC MODEL OF SOUTH AFRICA (LNP-MACRO)TM

The purpose of the ADRS provincial macroeconomic model is to produce projections of growth, investment, and employment for 27 sectors of each of the nine provinces in South Africa. The model captures the economic structure of nine provinces using econometric estimations of sectors of provincial investment, output and employment and nine linked national-provincial input-output tables. The latter captures sector linkages within provinces and between provinces and the rest of the South African economy. The model is most suitable for forecasting the impact of national level policies on provincial economies or the impact of provincial initiatives on the province and the rest of the country. A second version of the model, **LINKED NATIONAL-PROVINCIAL MACRO-MICRO MODEL OF SOUTH AFRICA (LNP-MM)TM**, allows additional assessments of the impact of policy scenarios on national and provincial poverty and income distribution.

For more information on ADRS models, visit the ADRS website or send your enquiries to adelzadeh@adrs-global.com.