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KINGDOM OF ESWATINI

SELECTED ISSUES

September 2024

This paper on Kingdom of Eswatini was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on September 10, 2024.

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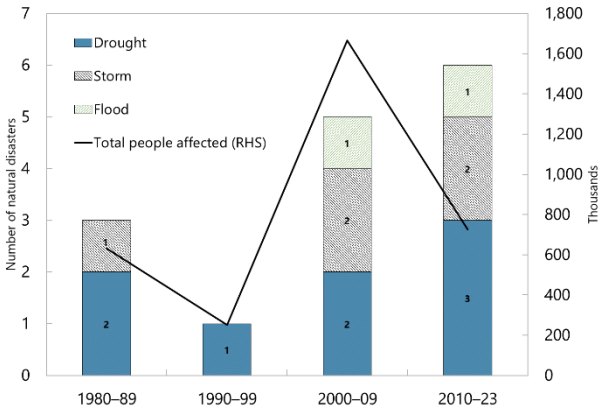
CLIMATE CHANGE IMPACTS IN ESWATINI[1]

Climate change is affecting Eswatini in several ways. With over 70 percent of the population dependent on agriculture, the increased frequency of extreme weather phenomena necessitates adaptation to create a climate-smart agricultural sector with a long-run objective of ensuring food security and generating exportable surpluses. Focusing on sustainable energy is also pertinent to reduce reliance on carbon-intensive energy production that exacerbates climate stress. Eswatini should be seeking access to green financing and insurance mechanisms to protect against the financial impacts of climate change.

1. Eswatini is highly susceptible to climate shocks and is impacted by frequent droughts, erratic rainfall, variability in temperature, and water scarcity. Eswatini ranks 72nd out of 163 countries in the Children's Climate Risk Index which places the country at low-medium severity.[2] The frequency of natural disasters has increased in the last two decades (Figure 1). Among SACU countries, Eswatini ranks the worst as measured by the percentage of the population displaced from their homes, required immediate assistance, or injured as a result of drought, storm, or flood (Figure 2). According to the ND-GAIN Index, Eswatini ranks the lowest compared to its neighbors (129th out of 185 countries) in climate vulnerability.[3] Eswatini's vulnerability in this regard is exacerbated by its relatively small surface area limiting the possibility of relocating population within the country. A severe storm in 1984 led to damages worth 17 percent of the country's GDP and recent hailstorms have done some damage to houses and vehicles. A drought in 2001 affected close to a million (World Bank Group, 2021) people (100 percent of the population). While the 2024 drought experienced across Southern Africa affected Eswatini, estimates of its impact are not yet available.

Figure 1. Natural Disasters Frequency and Severity



Sources: EM-DAT; and IMF staff calculations.

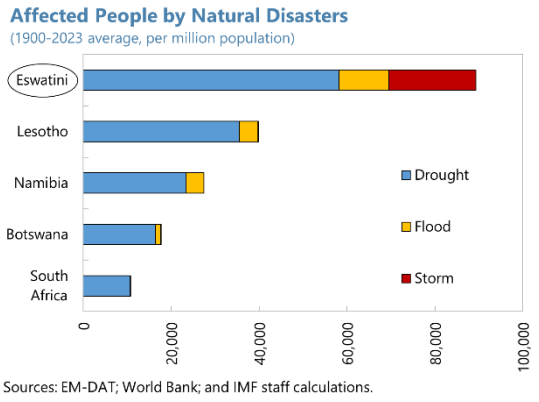
Note: The number of people affected is calculated as a sum of all people affected in each period by every disaster type. The period 2010–23 does not cover the drought in 2023.

[1] Prepared by Ankita Goel.

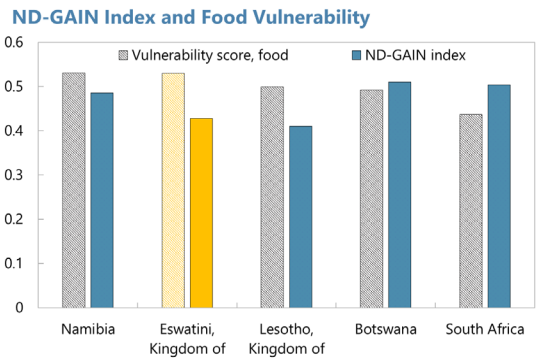
[2] A tool by UNICEF that measures the impact of climate and environmental shocks on children where rank 1 is the most at risk and 163 is the lowest risk. For more information, refer to UNICEF-climate-crisis-child-rights-crisis.pdf.

[3] ND-GAIN Index summarizes country's vulnerability to climate change and its readiness to improve resilience. For more information, refer to Rankings // Notre Dame Global Adaptation Initiative // University of Notre Dame (nd.edu).

Figure 2. Climate Vulnerability



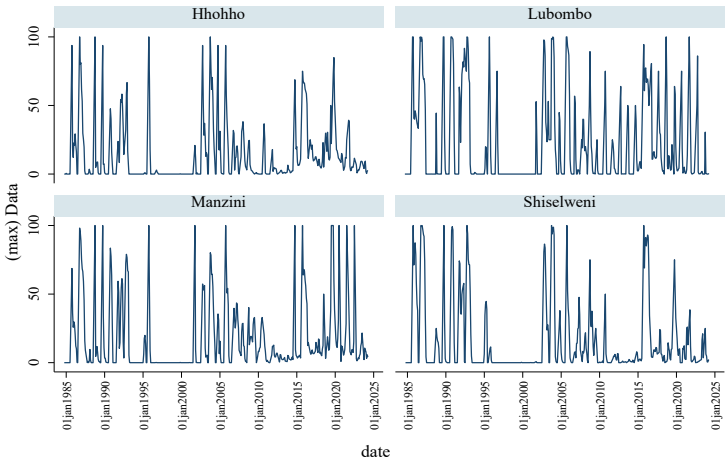
Sources: EM-DAT; World Bank; and IMF staff calculations.



Sources: IMF, Climate Change Indicators Dashboard; and Notre Dame Global Adaptation Initiative.
Note: The higher the ND-GAIN Index, the better. The lower the food vulnerability score, the better.

2. Severe natural disasters can worsen vulnerabilities in the agriculture sector. Over 70 percent of the population is dependent on agriculture for subsistence. (United Nations, n.d.) Due to prolonged droughts, 29 percent of the population face acute food insecurity and Eswatini ranks highest in food vulnerability among SACU members. (United Nations, n.d.) The production of sugarcane, which is one of Eswatini's main commodity crops, requiring irrigation, dropped in 2023 by 6 percent due to adverse weather. More broadly, agriculture is even more highly vulnerable to drought as 80 percent of farming in Eswatini is rain-fed, (primarily maize, a staple crop for which production is expected to decline by 12 percent in 2024). (Initial Adaptation Communication to the United Nations Framework Convention on Climate Change, 2021) Agriculture's contribution to GDP dropped by 3.5 percent between 2000 and 2019 partly due to drought. (AfDB, 2021) Food and Agriculture Organization (FAO) data show that the agricultural land in all provinces has been under constant stress since 2020 (Figure 3).

Figure 3. Agricultural Stress Index by Province



Sources: FAO; and IMF staff calculations.
Note: Graphs show the maximum stress on agricultural land in each province in a given month.

3. Following Annex XII in the 2022 Namibia Article IV staff report (IMF, 2022), this section examines the impact of two weather shocks—temperature and rainfall—on future crop output, using crop-level panel data from 2000–20. Agricultural output data, provided by the FAO, are recorded in metric tons for 30 crops grown in Eswatini, while data for rainfall and temperature are sourced from the IMF. The long-term averages for both rainfall and temperature are calculated by taking the mean values for the period between 1960 and 1990. Due to a lack of data, control variables are limited which results in a relatively low R-squared. Results from the panel data estimation suggest that a one-percent deviation from rainfall's long-term annual average, held constant, is associated with a 1.5-percent decline in crop output in the following year when accounting for deviations in temperature below the mean and with a 4.9-percent decline when accounting for deviations in temperature above the mean (Table 1, column 5).[4] Above normal temperatures can worsening droughts and lower crop output, also by disrupting the harvest.

Table 1. Kingdom of Eswatini: Weather Shocks and Agricultural Output

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Dependent variable: Output				
Time	0.0095	0.0091	0.0128	0.0117	-0.0086***
	(0.0070)	(0.0065)	(0.0087)	(0.0072)	(0.0018)
Time Squared	-0.0003	-0.0004	-0.0004	-0.0004	0.0002***
	(0.0003)	(0.0002)	(0.0003)	(0.0003)	(0.0001)
Rainfall		0.0006	-0.0652		
		(0.0077)	(0.1682)		
Rainfall (t-1)		0.0150			
		(0.0152)			
Temperature		-0.0199	-0.0203		
		(0.0194)	(0.0183)		
Temperature (t-1)		0.0196			
		(0.0312)			
Rainfall Squared			0.0036		
			(0.0100)		
Temperature Deviation from Long-term Mean				-0.0230	
				(0.0205)	
Rainfall Deviation from Long-term Mean				-0.0666	-0.0057*
				(0.0632)	(0.0032)
Temperature Deviation below normal					-0.0091
					(0.0074)
Temperature Deviation above normal					-0.0431**
					(0.0184)
Output growth	-0.1182	-0.1184	-0.1163	-0.1168	-0.2563***
	(0.0987)	(0.0985)	(0.0973)	(0.0983)	(0.0329)
Observations	588	588	588	588	588
R-squared	0.0709	0.0748	0.0724	0.0722	0.1092
FE	Yes	Yes	Yes	Yes	Yes

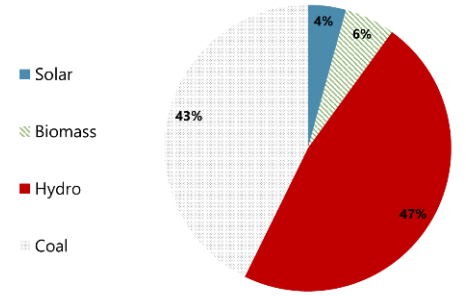
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[4] One limitation of this study is that it does not precisely capture the impact of days with severe weather on agriculture output, owing to absence of sufficiently granular data.

4. The impact of weather shocks makes it even more important to adopt climate-resilient agriculture practices. Eswatini pledged in the Nationally Determined Contributions (NDC 2021) to undertake climate-smart agriculture which some countries have tested.[5] For instance, Zambia has adopted training and sustainability incentives in agriculture and livestock that promote efficiency in water storage of soil and prevent biodiversity loss (World Bank, 2019). Morocco introduced irrigation systems that help target the optimal amount of water depending on crop needs (Climate Smart Agriculture, 2016). Similarly, the Indian state of Maharashtra is enhancing water availability and quality at the farm level by building drainage lines to maximize the surface water utility and improving the use of groundwater (World Bank, 2018). Senegal has been developing high-yielding and drought-resistant crops, which resulted in a 30-percent productivity gain (World Bank, 2015).

5. Climate shocks can aggravate weaknesses in the energy sector urging a transition to clean energy. The energy sector contributes 53 percent of the total greenhouse gas (GHG) emissions in the economy. Eswatini is dependent on South Africa for 80 percent of its electricity needs. Consequently, the recent load shedding in South Africa has prompted Eswatini to generate more electricity domestically, including from renewable sources, which already accounts for 57 percent of its capacity generation. (Africa Energy Portal, 2024) There are various planned on-grid projects with the generation capacity exceeding 700 megawatts. (Figure 4). The focus on renewables is also underscored by the fact that domestic generation, if not done sustainably, can create more climate stress and penalize the country for creating a larger carbon footprint by triggering a Border Carbon Adjustment (BCA). Eswatini can also be penalized for exporting carbon-intensive products such as coal (including anthracite) which accounted for USD 24 million in 2021, 1.2 percent of total exports (or 0.5 percent of 2021 GDP).[6] A large, new anthracite coal mining operation went into production in the 3rd quarter of 2023.

Figure 4. Energy Mix



Source: Africa Energy Portal.

6. To meet the adaptation goals committed in the NDC, Eswatini will require investments worth USD 1.5 billion, a very large amount compared to the green financing raised so far. Understanding the institutional and legal framework to access the Green Climate Fund (GCF) and other climate financing will be important in this regard. Solidifying both climate-smart agricultural and energy projects to meet the GHG emissions target reduction of 5 percent (NDC 2021) can be done in various ways:

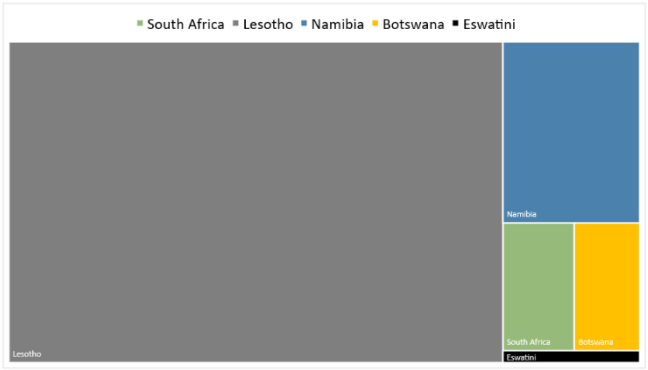
[5] NDCs or Nationally Determined Contributions are commitments made by countries to reduce their greenhouse emissions as a part of climate change mitigations.

[6] UN Comtrade and IMF staff calculations.

- *Accessing and disbursing climate funds*: Eswatini secured USD 5.6 million from GCF financing although, at this stage, the modalities governing its disbursement and utilization lack precision. The country also secured USD 2 million from multilateral climate funds focused on water management and energy efficient appliances (Climate Funds Update, 2024); however, this access level is lowest among SACU members (Figure 5) and in sub-Saharan Africa (SSA).

Figure 5. Climate Funding

Size of Funding Received
(Percent of 2023 GDP)



Sources: Climatefundupdate.org; IMF, *World Economic Outlook*; and IMF staff calculations.

- *Establishing a fund to mobilize climate financing*: The authorities can establish a fund to not only secure climate financing and grants, but also channel their use to various green projects. Namibia, for example, established its Environmental Investment Fund (EIF) already in 2001.[7] For this purpose, parliamentary appropriation was voted to secure resources in the form of investments, grants, and donations for climate change-related projects. The fund succeeded, among other things, in creating 950 employment opportunities, 92 nature-based enterprises, 3,277 hectares of land under conservative agriculture, and 169 boreholes[8] benefitting around 80,000 people.

- *Issuing corporate green bonds*: These instruments can be used to encourage the private sector to invest in climate friendly and sustainable projects. For example, in Namibia, Bank Windhoek (a commercial bank) issued USD 4.6 million (Tyson, 2021) worth of green bonds in 2018 to support projects in the energy and transportation sector.

- *Increasing access to insurance mechanisms:* Insurance plays a crucial role in providing a safety net against the unpredictable impacts of disasters. By spreading the financial risk associated with natural disasters, insurance helps to stabilize economies and support recovery efforts. For example, the Global Index Insurance Facility (GIIF), initiated by the World Bank, is designed to offer affordable insurance solutions to farmers and micro-entrepreneurs in emerging economies, particularly in SSA. This initiative aims to protect vulnerable groups against the adverse effects of climate-related events including droughts and floods. Similarly, the InsuResilience Global Partnership seeks to enhance the financial resilience of poor and vulnerable communities. Major reinsurance companies such as Munich Re and Swiss Re also contribute by offering reinsurance solutions that make insurance more accessible and affordable in regions prone to natural

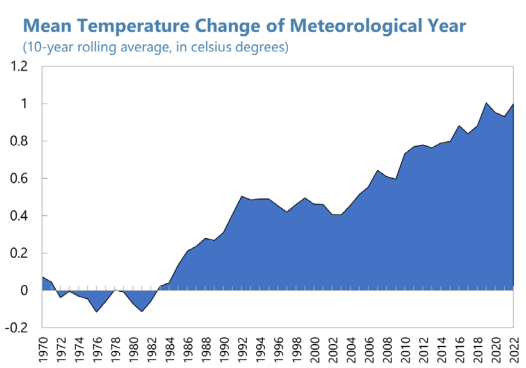
[7] Environmental Investment Fund. For more information, refer to Environmental Investment Fund of Namibia (EIF) - Official Website.

[8] A borehole is a narrow shaft bored in the ground, constructed vertically or horizontally for various purposes including extraction of water, gases, and other liquids.

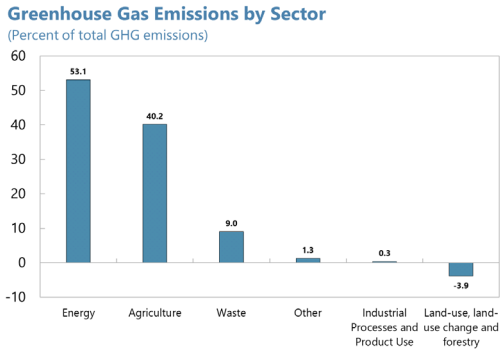
disasters. These platforms collectively work towards mitigating the financial burden of disasters, ensuring that the affected populations can recover more swiftly and sustainably.

- *Carbon credits:* Eswatini can generate carbon credits through the forestry sector and sell them to invest in green technologies.

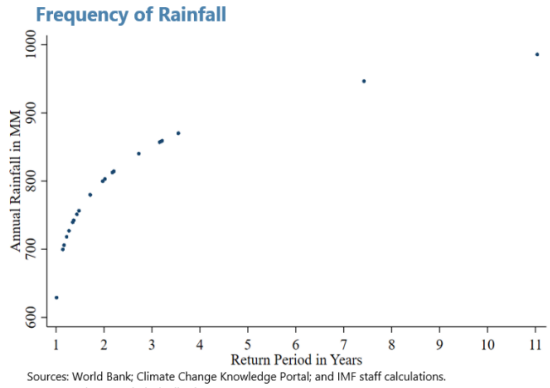
Figure 6. Climate Monitor Dashboard



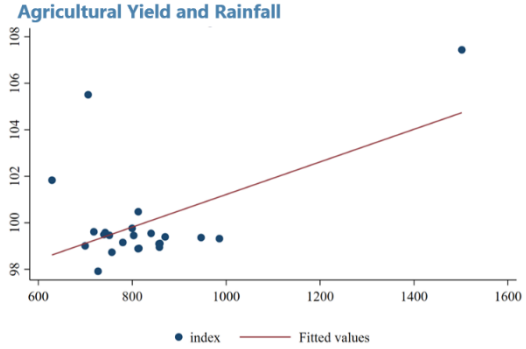
Sources: IMF Climate Change Indicators; and IMF staff calculations.



Sources: IMF Climate Change Dashboard; and IMF staff calculations.



Sources: World Bank; Climate Change Knowledge Portal; and IMF staff calculations.
Note: Based on Gumbel Distribution.



Sources: World Bank; Climate Change Knowledge Portal; Food and Agricultural Organization; and IMF staff calculations.
Note: Index refers to Agricultural Yield Index; it is created by the IMF staff using FAO data as weighted average of products' agricultural yield. Output as a share of total output in each year is used as the products' weight.

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NOWCASTING GDP IN ESWATINI[1]

Forecasting GDP is essential for policymakers and forecast accuracy is challenging, especially when data are scarce. Governments and central banks need accurate forecasts to make appropriate policy decisions. Budgeting and monetary policy rely on forecasts of GDP. GDP forecasting models need data and data gaps affect forecast accuracy since the data that is available may not have a strong correlation with broad macroeconomic activity.

1. Eswatini faces challenges in producing GDP forecasts. The macro forecasting team in Eswatini is composed of members from several institutions including the Central Bank of Eswatini (CBE), Ministry of Finance (MoF), and Ministry of Economic Planning and Development (MEPD) who are skilled and capable of producing good forecasts. However, the quality of these forecasts does not reflect ability but the lack of good data. The quarterly GDP has some weakness in its source data and revisions tend to be large, especially when the quarterly data is subject to reconciliation during the annual compilation exercises. The Central Statistical Office (CSO) in Eswatini faces numerous challenges. There is not any quarterly or annual business survey done, therefore, the macro forecasting team conducts their own for the first quarter of the calendar year. This exercise is an enormous drain on resources but improves the forecast quality. Also, there is a lack of high frequency data that can support a forecasting exercise.

2. Nowcasting can augment the models used by the Eswatini authorities to inform policy. In the absence of data, the structural and more traditional regression methods usually don't perform well but it is still important for policy makers to have a view on the economy. By employing nowcasting techniques using machine learning (ML), the team can have a "flash" view of the economy in real time, but also can use it to check the performance of the traditional models. One caveat is that ML techniques do not allow for identification like traditional approaches, so it is difficult to pin down what is driving the forecast. It is difficult to interpret economic performance and make policy without an economic story so nowcasting models are limited in this way.

3. The growing number of shocks to the global economy requires an innovative approach to measuring economic activity in real time. In normal circumstances, the real level of economic activity could be easily understood through traditional monthly and quarterly information on Gross Domestic Product (GDP) and monthly information through the Industrial Production Index. However, the frequency of global shocks necessitates innovation to better understand the current economic situation. Take for example, the COVID-19 crisis, whose real impact could not have been truly measured until the GDP data were released for the first and second quarters of 2020. As a result, policy makers did not have a timely and adequate gauge of the real impact of the pandemic on household well-being and the macroeconomy, which was needed to inform policy responses. Nowcasting techniques have gained the attention of modelers and policy makers as they provide

[1] Prepared by Thomas Dowling, and Hamza Mighri.

unique set of tools to leverage the high-frequency data produced by various sources and the power of ML techniques to provide timely forecasts of GDP growth.

4. Methodology. The nowcasting framework applied to Eswatini uses a multi-step approach from model selection to horse racing, and nowcasting.

- *Data selection*: First, it is important to select a set of salient indicators that present the following characteristics: (1) move in the same direction as GDP (i.e., have the highest correlation with GDP growth); (2) have enough time span allowing for model to estimate the key parameters; and (3) are published monthly.

- *Horse-racing*: in this phase, the data is split between a tuning set (85 percent) and an evaluation/testing set (the remaining 15 percent). The output will then produce different model summary indicators of about 38 ML models. To select the final model, we refer to the model with the lowest in-sample Root-Mean-Square-Error (RMSE).

- *Nowcasting estimates*: at this stage, the program is rerun with 100 percent of the data used to estimate the GDP values using the model selected in the previous step.

5. Data. For nowcasting Eswatini's GDP growth, the models rely primarily on quarterly and monthly data shared by authorities. Particularly, this study initially utilized the following domestic indicators: inflation, exports, exchange rate appreciation/depreciation, and tourist arrivals.

6. To improve the model and overcome data limitations, South African indicators were added to the dataset. Using the above domestic indicators limited the predictive power of the nowcasting framework. To address this issue, an additional set of indicators related to the South African economy was added, given the interlinkages between Eswatini and the South African (ZAF) economy and the broader SACU region. The following indicators for South Africa were included: number of vehicles sold, Business Confidence Index (BCI), stock market growth, and GDP growth.

7. The addition of indicators for South Africa significantly improved the model's results (Figures 1 and 2). The model that includes indicators from South Africa (Figure 2) shows both actual and nowcast values moving in the same direction with much smaller gaps than when using solely domestic indicators (Figure 1). Returning to our COVID period example, the model predicts 2020Q2 growth at 10 percent year-on-year without the South Africa variables. Once the model incorporates the South Africa indicators, the result is -8.6 percent growth year-on-year. The actual quarterly GDP growth was -10.2 percent year-on-year.

Figure 1. Nowcasting SWZ GDP Using Domestic Indicators

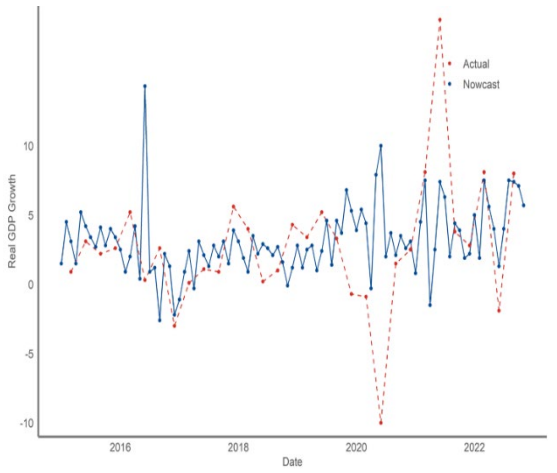
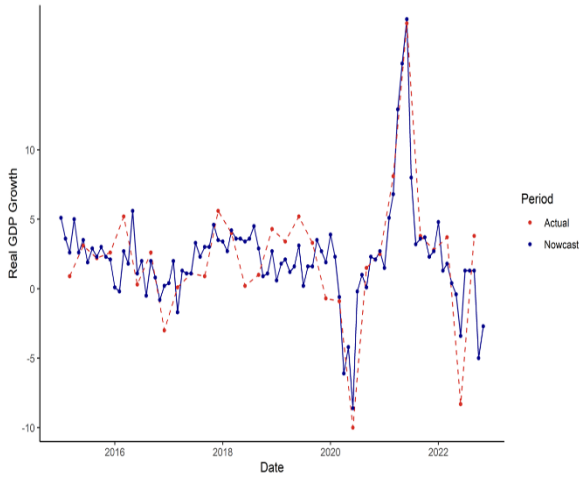


Figure 2. Nowcasting SWZ GDP Including ZAF Indicators



Source: IMF staff.

8. While adding South Africa indicators delivers better results, the lack of indicators for the Eswatini economy remains a problem. For the continuation of the nowcasting exercise and proper use by the authorities, it is essential to increase the number of data releases of key indicators on a monthly or even weekly basis to continue to improve the predictive power of the framework.

9. There are many possibilities for future work. The rise of non-traditional high-frequency data is a trend in the machine learning space. The authorities could benefit from using some of these indicators such as nighttime lights data (NASA), Google Trends, and Nitrogen Dioxide data, which have proven to add significant improvement in nowcasting GDP for other countries.[2]

10. This exercise illustrates that including a nowcasting approach can enrich the information policy makers have in real time and sparse data can be expanded using the data of similar or dominant economies. Adding the South African data improved the forecasting power of the models and could be expanded. These results provide a window into the current economic state and serve as a check for the traditional models.

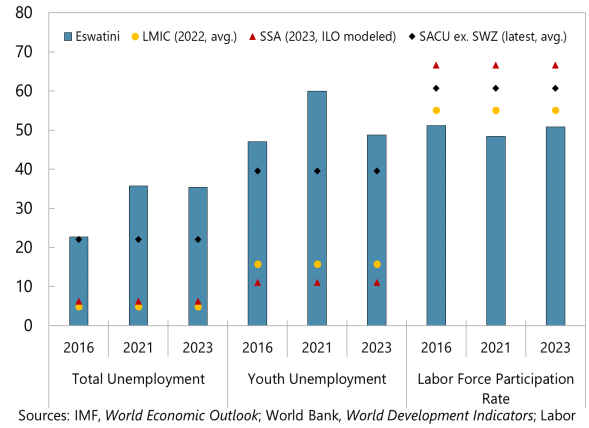
[2] Dauphin and others. "Nowcasting GDP - A Scalable Approach Using DFM, Machine Learning and Novel Data, Applied to European Economies." IMF Working Paper WP/22/52. 2022.

LABOR MARKETS AND UNEMPLOYMENT INSURANCE IN ESWATINI[1]

High and persistent unemployment, especially among the youth, remains a key concern in Eswatini. Despite high unemployment, job opportunities are limited and there is no social protection for the unemployed. Addressing the issue needs (i) policies to invigorate labor market, especially the private sector, and reduce skills mismatches with (ii) affordable and sustainable social protection provisions. An ongoing initiative to implement an unemployment benefit fund could be a building block for a larger initiative to address unemployment.

1. Unemployment in Eswatini is high and constitutes an important structural barrier to growth. The unemployment rate has stayed high at 35.7 percent in 2021 and 35.4 percent in 2023. At 48.7 percent in 2023, youth unemployment proved especially high and, despite a significant drop from 60 percent at the peak of the COVID-19 pandemic in 2021, it was still higher than 47 percent recorded in 2016. Unemployment statistics in Eswatini are starkly higher than the averages for the SACU region, the SSA region and low- and middle-income countries (LMICs) (Figure1). Low levels of job creation, large skill gaps, and limited social protection for the unemployed, have resulted in high levels of poverty[2] identified as the key driver of the civil unrest in 2021. Over 46.2 percent of the unemployed youth say they have been unsuccessfully looking for a job for over one year.[3] Gaps also persist by gender, as the unemployment rate for women was 37.6 percent in 2023 as compared to 33.1 percent for men.

Figure 1. Labor Market Indicators



Sources: IMF, *World Economic Outlook*; World Bank, *World Development Indicators*; Labor Force Survey; and IMF staff calculations.
Note: All data are national estimates, unless specified.

2. Equally concerning is the low labor force participation rate of 50.8 percent in 2023. While labor force participation rates have remained stable over time, they are significantly lower in Eswatini than in the SACU region, the SSA region and among LMICs. At 48.0 percent the labor force participation rate for women is lower than that for men at 54.1 percent (based on 2023 data). Some of the factors driving the low labor force participation rate are limited job opportunities and the difficulty in transitioning between jobs. Amongst those not in the labor force, 36.8[4] percent say that

[1] Prepared by Sanghamitra Warrier Mukherjee, and Jasmina Papa (International Labour Organization).

[2] Estimates indicate that 58.9 percent of the population of Eswatini lived below the national poverty line as of 2016. Updated post-pandemic indicators are not yet available.

[3] All labor force statistics are for 2021, unless otherwise stated.

[4] Staff calculations using ILO 2021 LFS.

they are tired of looking for jobs or that there are no jobs matching their skills. Further, 34.9[5] percent of the youth are not engaged in education, employment, or training. This gives rise to a concern that poor labor market outcomes for the Eswatini's youth limit the nation's ability to benefit from the demographic dividend that could result from its large young population.

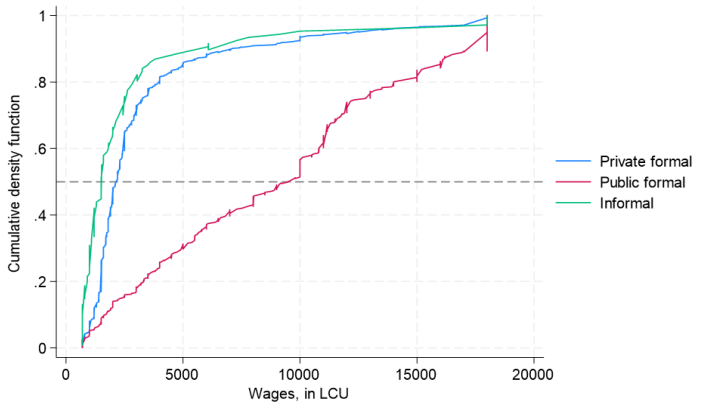
3. Active labor market policies and robust social protection are key to addressing unemployment. In line with the Nordic flex security model, it is important that strong and efficient labor market policies are complemented with social protection programs that allow for reallocation of labor. Unemployment insurance could be an efficient social protection program to assist those experiencing joblessness. Comprehensive protection in case of unemployment aims not only at providing income compensation for job loss (using schemes, such as unemployment insurance) but also at facilitating return to work by relying on employment promotion programs, including employment-intensive programs, skills development, and entrepreneurship-support measures. Such active labor market policies could either complement national social protection policies or be fully integrated into its design, according to a country's institutional features. This annex provides policy advice on active labor market policies, and the feasibility of social protection in case of unemployment.

Box 1. Core Elements of the Flex Security Model

- Firms can hire and fire at will, without high costs of hiring/firing.
- Social protection is provided in the event of job loss.
- Education and /or training services are provided to smooth the transition back to employment.

4. Job creation especially in the formal private sector is critical. Over 50.1 percent of the jobs are in the informal sector and insufficient job creation has been supplanted by the proliferation of low value-added jobs (including subsistence agriculture and low-quality jobs). A big roadblock to the development of a vibrant private sector is the presence of a large and well-remunerated public sector (Figure 2), which employs

Figure 2. Distribution of Wages in Public and Private Sectors



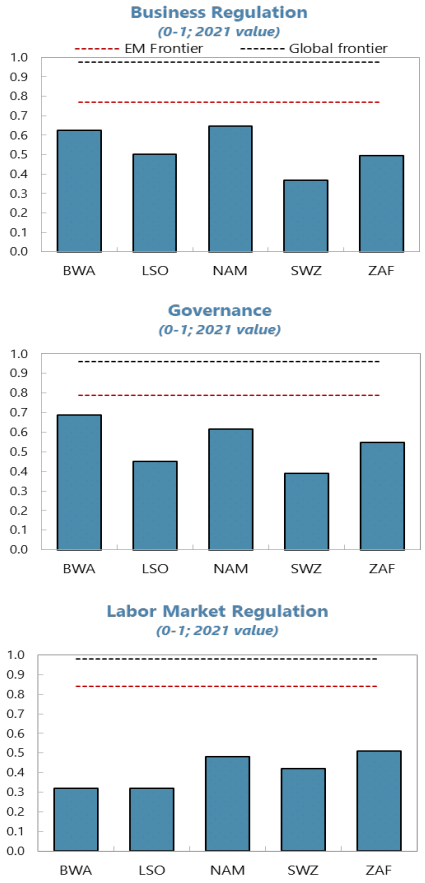
Sources: Integrated Labor Force Survey 2021, ILO; and IMF staff calculations.

[5] Staff calculations using ILO 2021 LFS.

24.8 percent of the labor force (as of 2021) commanding a wage premium of about 61 percent (Appendix I). This renders the private sector uncompetitive in attracting and retaining skills. For example, job tenure for the median worker in the public sector is 11 years compared to 4 years in the formal private sector. In sum, the crowding out by the public sector, combined with the small market size, weak investment potential, poor business environment, and labor market barriers, limits the development of a competitive private sector.

5. Active labor market policies should address skill gaps, as well as skill mismatches. Skill levels are low and only about 15.1 percent of the population aged 25 and above has completed at least secondary level education (2021 World Bank data). To address skill gaps, the current five-year National Development Plan has listed human capital development as a key goal, with a focus on Science, Technology, Engineering and Mathematics (STEM). Eswatini has also committed to closing the gender gap in STEM fields and encouraging higher labor force participation by women through job shadowing programs and developing inclusive curriculums. In addition, skill mismatches are an issue in Eswatini. The median unemployed person searches for a job for over one year. Providing information about worker skills, facilitating vocational training for youth, and encouraging the use of job search platforms can improve labor market outcomes; (VoxDev Lit, 2024; Ghisletta et al., 2021; McKenzie et al., 2017). Similarly, limited information on worker experience and skills constrains hiring by firms. Public employment services can play an essential role in matching jobseekers to job opportunities. Likewise, their role in integrating active labor market policies with social protection can help not only to improve labor market outcomes but also to reduce inequalities for disadvantaged groups. Irrespective of a country's income level, its public employment service can support economic and labor market growth and exert a countercyclical influence during economic downturns, helping to reduce unemployment and address joblessness caused by structural changes.

Figure 3. Structural Reforms Frontier



Source: IMF staff.

6. Eswatini is far from the global frontier and the frontier for emerging markets on structural reforms, including business regulations, governance, and labor market regulations.[6] When compared to other SACU countries, Eswatini lags all SACU peers on business regulations and governance (Figure 3). It is also behind Namibia and South Africa on labor market regulations. The World Bank 2024 Women, Business, and the Law index points to high levels of gender-based violence, lack of access to finance, and lack of paternity leave.

7. The social protection coverage gap remains large, especially for the working age population. Notably, there are no programs to tackle unemployment, even though it may be one of the avenues to address high levels of poverty and inequality. Social protection expenditure (excluding essential healthcare) at 5.96 percent of GDP in 2020[7] (compared to 1 percent in 2019) covered 36.1 percent of total population with at least one social protection program (compared to 32 percent in 2019). A proposal to implement an unemployment benefit fund is under consideration and likely to go to Cabinet later this year.

Box 2. Unemployment Insurance Across Africa

Effective coverage for unemployment protection for the working-age population is relatively low across Africa: only 3.8 percent of unemployed people receive unemployment benefits in 2023 (Forthcoming World Social Protection report 2023). Recognizing this gap, several countries have implemented unemployment benefit schemes (Algeria, Cabo Verde, Egypt, Gabon, Mauritius, Seychelles, South Africa, and the United Republic of Tanzania), with few others, such as Morocco and Tunisia working on their design. Many African countries still rely on severance pay provisions regulated in national labor codes based on employers' liabilities, but companies often face economic challenges that inhibit payment of these benefits, and dismissed workers rarely initiate legal action to claim their rights. Therefore, unemployment benefits would constitute a better mechanism to provide income security for jobseekers. One of the challenges that African countries face, however, is to promote employment through effective linkages with active labor market measures and job centers, which are limited or non-existent in many African countries.

8. Eswatini's middle-income country status militates in favor of implementing an unemployment insurance scheme. Evidence shows that unemployment insurance implementation may be challenging but is feasible in LMICs. Labor markets in LMICs exhibit high informality, high worker transition rates between formal and informal sectors, and labor market frictions (Donnovan et al., 2023; Alfonsi et al., 2020; Bryan et al., 2014). While common in high-income countries, difficulty in tracking work statuses, limited fiscal space to fund unemployment insurance and costs

[6] The analysis structural reform frontiers follow the method used by the IMF 2023 Staff Discussion Note on "Structural Reforms to Accelerate Growth, Ease Policy Trade-offs, and Support the Green Transition in Emerging Market and Developing Economies." The Business Regulation index includes reforms on administrative requirements, impartial public administration, and bureaucracy cost. The Governance index includes reforms on political stability, regulatory quality, voice and accountability, government effectiveness, rule of law, and control of corruption. Finally, the Labor Market Regulation index includes reforms on hiring and firing, and on centralized collective bargaining.

[7] Of the 5.96 percent of GDP in social protection expenditure only 0.6% of GDP is spent for working age benefits.

of implementation make such protection less common in LMICs[8] (Ndiaye et al., 2023; Cirelli et al., 2021; Benjamin and Mbaye, 2012; Vodopivec, 2009). The fitness for purposes and existence of critical operational procedures of institutional and governance arrangements are sometimes also seen as a challenge. The Eswatini government has initiated feasibility studies for the establishment of an unemployment benefit scheme as part of measures aiming at comprehensive social security reforms and efforts to mitigate the impact of future crises. However, reaching a decision about institutional arrangement for its implementation is marred by lack of experience and potential financial implications. None of the existing entities has experience and fully fledged critical operational requirement for social insurance arrangement focused on a short-term risk. Hence new arrangements would need to be set up, either by creating a standalone fund (which would in the future manage other short term social insurance risks) or creation of a hybrid model where unemployment benefit fund is allowed to outsource certain operations from existing public entities. However, it is possible that efficiency costs of an unemployment insurance scheme with high informality may not be higher than that in formalized economies (Gerard and Gonzaga, 2021; Margolis et al., 2015). For example, the ILO finds that welfare gains largely outweigh the efficiency costs of an unemployment benefit scheme in Mauritius.

9. Despite implementation complexities, unemployment insurance can have positive welfare and efficiency effects. First, the role of unemployment insurance in strengthening worker protection[9] and reducing poverty, is well documented (Ndiaye et al., 2023; Liepmann and Pignatti, 2021; Gonzales Rozada and Ruffo, 2016). Notably, Ndiaye et al., 2023 finds that in Senegal a 1 percent labor tax put toward unemployment insurance yields a 1.4 percent consumption-equivalent welfare gain. Second, unemployment insurance also can ease labor market frictions stemming from skill mismatches, job search, barriers to migration, and job productivity (Duval and Loungani, 2019; Cox and Fafchamps, 2007). Third, unemployment insurance benefits can help formalize the economy as it provides a stepping-stone back into a formal sector job. In the absence of unemployment insurance displaced workers often move to informal employment out of necessity, having to accept lower-paying jobs. Finally, expanding social protection can reduce credit constraints and loan defaults (by providing an income buffer during joblessness) and reduce future fiscal pressure on the

Table 1. Kingdom of Eswatini: Designs for Unemployment Insurance

Unemploymnt Insurance design	Contibution rate (Employer + worker)	Maximum payment duration	Benefit rate
UI Design 1	1.85%	3 months	50%
UI Design 2	1.85%	3 months	67%
UI Design 3	1.85%	6 months	50%
UI Design 4	1.85%	6 months	67%
UI Design 5	2.30%	3 months	50%
UI Design 6	2.30%	3 months	67%
UI Design 7	2.30%	6 months	50%
UI Design 8	2.30%	6 months	67%

Source: IMF staff.

[8] It is important to caveat that unemployment insurance protects the less vulnerable amongst the unemployed population, as it acts as a buffer for those with stable jobs who have contributed to the program for a sustained duration. There is an increased focus on the inclusion of informal workers as they constitute a large part of the labor force in LMICs (Sehnbruch, 2020).

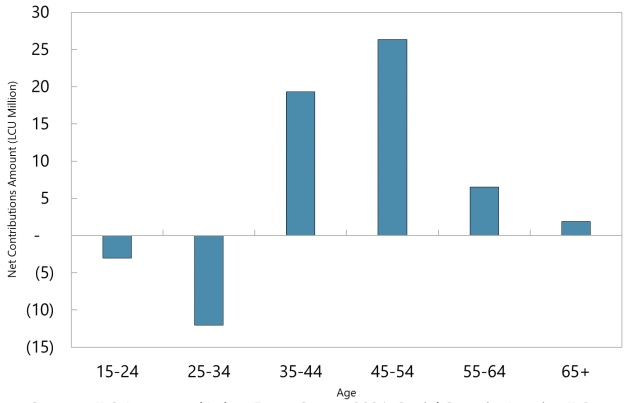
[9] Chetty 2008 shows that increase in unemployment durations caused by unemployment insurance benefits is socially optimum as it is driven largely due to a liquidity affect rather than moral hazard, as the unemployed cannot smooth consumption perfectly.

government (Bornstein and Indarte, 2022). At the same time, it should be noted that the unemployment insurance scheme may not benefit some of the most vulnerable, for example, the informal sector or workers with temporary jobs. But if implemented appropriately, an unemployment insurance scheme can serve as a building block for more inclusive labor market policies by channeling savings generated through the scheme productively.

10. Design of unemployment insurance matters for effectiveness and sustainability (Bosch and Esteban-Pretel, 2015). Table 1 presents the eight different unemployment insurance designs considered in this Annex by varying the benefit rate, benefit duration and contribution rate. The draft bill currently being considered in Eswatini is "UI Design 3" and allows for coverage for all salaried employees of the public and private sector if they have contributed for 12 out of 18 months prior to the commencement of unemployment. It provides for 50 percent of the monthly salary for a duration of six months. It also sets a minimum floor to the benefit as 50 percent of the minimum wage of the sector.[10] Estimates using the Integrated Labor Force survey, 2021 suggest a 10.9 percent beneficiary to contributory rate (which lines closely to the formal sector employment exit rate for wage workers documented by Donnovan et al., 2023 in their cross-country study).[11] It remains to be decided which institution is best placed to house the unemployment benefit fund. Key contenders include the Eswatini National Provident Fund (ENPF) and Public Service Pension Fund (PSPF). Current estimates are provided for the ENPF which has lower significantly lower administrative costs.

11. Large net contributions to the unemployment insurance scheme in Eswatini would be made by older workers and public sector workers. Figure 4 documents the beneficiary to contributor ratio by various subgroups to assess who would be "taxed" and who would benefit most from the unemployment insurance scheme (for "UI Design 3"). Low net contributions (in LCU, millions) reflect that the participants aged 15–34 would benefit most from unemployment insurance. This outcome is welfare enhancing given the high incidence of unemployment and poverty among Eswatini's youth. It offers the youth an income cushion to extend the job search period, which could facilitate achieving a closer match between worker and firm, and reduces risk of human capital depreciation, which may

Figure 4. Net Contributions by Age
(LCU millions)



Sources: ILO Integrated Labor Force Survey 2021; Social Security Inquiry, ILO; and IMF staff calculations.

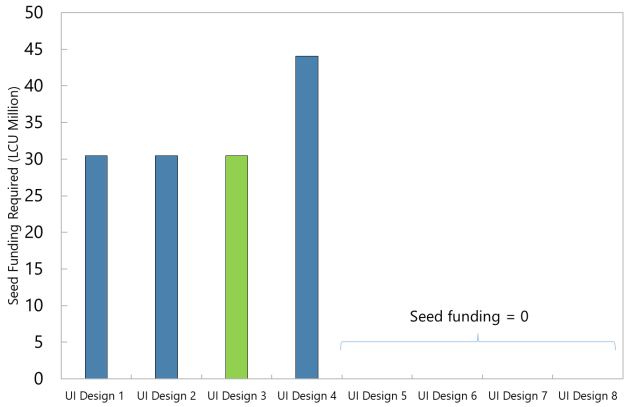
[10] The current draft bill includes contributions and benefits for maternity and sickness. This SIP excludes these components from estimates, due to lack of data to produce reliable estimates.

[11] Estimates use data on employment, job duration, wage distribution, unemployment duration, formality status, and other demographics from the 2021 Integrated Labor Force survey.

be higher in the informal sector (VoxDev 2023). Similarly, low net contributions (in LCU, millions) are seen amongst women, workers in rural areas, workers with low levels of education, and private sector workers highlighting that these sub-groups are disproportionately vulnerable to unemployment and will benefit from a social protection program.

12. A contributory unemployment insurance scheme may be financially sustainable in the long run (25 years) but needs short-run seed funding of 30 million (LCU) from the government. To project the cost of financing unemployment insurance in the long run, data is projected annually for both net contributions[12] and administrative costs.[13] Projections are presented for two financing scenarios for unemployment insurance: (i) Fully contributory; and (ii) Contributory with seed funding from the government. Table 2 and Figure 5 shows that UI Designs 5 through 8 are sustainable under both funding options. All UI designs are feasible with some seed funding from the government. UI Design 3 is sustainable with 30 million LCU in seed funding (approximately 0.03 percent of GDP).[14] Savings generated under the unemployment insurance scheme can be committed towards social protection efforts including promoting TVET centers, implementing public works programs, providing cash transfers to the most vulnerable.

Figure 5. Seed Funding Required by UI Design
(LCU millions)



Sources: ILO Integrated Labor Force Survey 2021; ILO, Social Security Inquiry; and IMF staff calculations.

13. Unsustainable financing of the unemployment insurance scheme can become a contingent liability for the government. To assess the viability of an unemployment insurance scheme, the robustness of "UI Design 3" is tested under two stress scenarios: (i) Recession; and (ii) Public sector reform. Under the first shock of economic recession, unemployment increases by 5 percent per year for five years and leads to an increase in the number of claimants, reduction in number of contributors, as well as a rise in the administrative cost of implementation. Under this stress scenario, the unemployment insurance scheme remains sustainable under both financing schemes. Under the second scenario of public sector reform, the public sector shrinks by 40 percent and leads to a short-run (two-years) increase in unemployment of and a medium/long-run reallocation of workers to the private sector. The unemployment insurance does not remain viable under this scenario under both financing schemes. This is driven by two mechanisms: (i) median

[12] Latest available data is used as a baseline and then projected forward based on trends in employment and population growth in recent years.

[13] Administrative costs are assumed to be high for the first year to account for set-up costs. To project administrative costs, the average administrative cost per person (contributor and beneficiary) is calculated for the ENPF using data from the 2020 Social Security Inquiry.

[14] To make UI Design 3 fully sustainable without seed funding would require a contributory rate of 2.23 percent.

wages in the public sector are higher and therefore, a smaller public sector implies lower contributions to the unemployment insurance; and (ii) public sector has less churn compared to the private sector and therefore, the beneficiary to contributor ratio rises with a larger private sector in the medium run and puts financial pressure on the scheme. This highlights the importance of a slow

and steady public sector reform and necessitates redesigning the UI scheme as the structure of the economy changes to avoid contingent liabilities. Further, any public sector reform aiming to reduce the wage bill and increase the efficiency of the civil service, potentially generating savings, should be seen as an opportunity to redeploy these resources toward social protection, including, but not only and perhaps not in the first order, the unemployment insurance.

Table 2. Kingdom of Eswatini: Long-Run Sustainability of Unemployment Insurance

Unemploymnt Insurance design	Contibution rate (Employer + worker)	Maximum payment duration	Benefit rate	Sustainable in 20 years? (if fully contributory)	Seed funding required (LCU, million)
UI Design 1	1.85%	3 months	50%	No	30
UI Design 2	1.85%	3 months	67%	No	30
UI Design 3	1.85%	6 months	50%	No	30
UI Design 4	1.85%	6 months	67%	No	44
UI Design 5	2.30%	3 months	50%	Yes	-
UI Design 6	2.30%	3 months	67%	Yes	-
UI Design 7	2.30%	6 months	50%	Yes	-
UI Design 8	2.30%	6 months	67%	Yes	-

Sources: Integrated Labor Force Survey 2021, Social Security Inquiry, ILO, and IMF staff calculations.

14. Fiscal space can be channeled towards funding social protection but should be complemented with active labor market policies and efficiency enhancing policies. The current fiscal position could absorb the seed funding amount without raising the debt-to-GDP ratio if fiscal prudence is maintained. The complementarity of sustainable financing of social protection and active labor market policies is illustrated through a positive scenario analysis where job creation and other active labor market policies reduces unemployment by 3 percent per year for five years. Estimates show that all UI Designs considered in this annex are sustainable, albeit some with seed funding. Further, significant savings are accumulated in the unemployment insurance scheme under the seed funding financing scenario. Finally, efficiency of social protection financing can be improved by digitalization efforts, such as setting up digital IDs and digitalizing government systems.

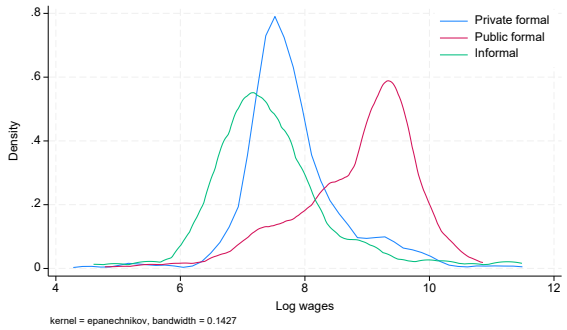
Appendix I. Public Sector Wage Premium[1]

The large public sector in Eswatini, with a significant wage premium over the private sector, limits the growth potential for the private sector.

1. Eswatini has a large and dominant public sector. The public wage bill is 9.9 percent of GDP for FY2023/24, and the sector employs 24.8 percent of the labor force (as of 2021). The wage bill is driven by a generous salary scale across all levels of public employment.

2. The large wage gap between the public and private sector impedes private sector competitiveness. The average wage in the public sector is 2.57 times as high as that in the private sector (and 4.42 times for the median worker).[2] This gap would be even higher once the non-wage allowances in the public sector are considered. The kernel density estimates of public and private wages in Figure 1 shows that the two distributions are fundamentally different, with the public sector's distribution lying to the right of that of the private sector. The disparities are potentially due to worker characteristics in the public and private sector. The public sector distribution is more dispersed than the private sector. Further, as expected, the informal sector wage distribution lies further to the left of the private sector wage distribution.

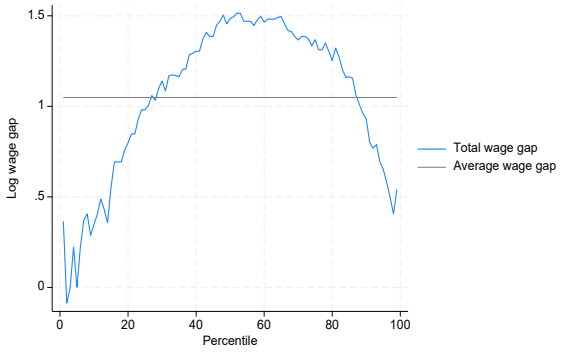
Figure 1. Probability Density of Wages in Public and Private Sectors



Sources: Integrated Labor Force Survey 2021, ILO, and IMF staff calculations.

3. The public-private sector wage gap is the highest in the middle of the wage distribution. The wage gap is computed as the difference between public and private wages across percentiles. The gap is less at the lower end of the wage distribution, highest around the median and then low again at the upper end, as shown in Figure 2. This implies, the private sector can compete in wages with the public sector only for very low wage jobs (below the 30th percentile of wages) or for very high wage jobs (above the 90th percentile of wages). The wage gap is estimated to be higher for women across the distribution (except for high wage jobs, where the wage

Figure 2. Public-Private Sector Wage Gap



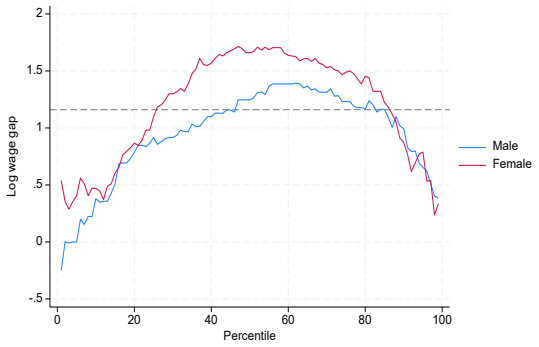
Sources: Integrated Labor Force Survey 2021, ILO, and IMF staff calculations.

[1] Prepared by Sanghamitra Warrier Mukherjee.

[2] Public sector employees in Eswatini are paid more than the global average (Worldwide Bureaucracy Indicators).

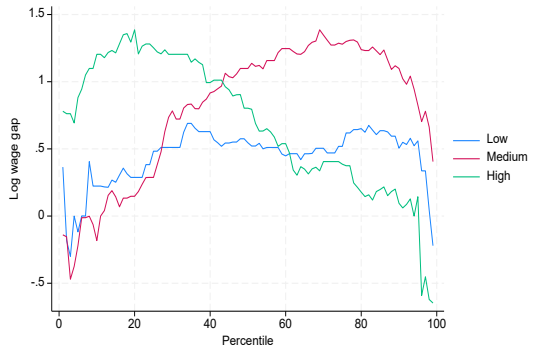
gap looks very similar for men and women, Figure 3). Finally, Figure 4 shows substantial heterogeneity for the wage gap across skill levels. For low skill jobs, the wage gap is relatively low. For medium skill jobs, the gap is stark for higher wage percentiles and for high skill jobs, the wage gap is prominent for low wage percentiles. The highest wage gap is seen for service and sales workers. The gap is also higher in rural areas.

Figure 3. Public-Private Wage Gap by Gender



Sources: Integrated Labor Force Survey 2021, ILO, and IMF staff calculations.

Figure 4. Public-Private Wage Gap by Skill



Sources: Integrated Labor Force Survey 2021, ILO, and IMF staff calculations.

4. The public wage premium in Eswatini remains high after controlling for individual characteristics. Microdata from the 2021 Labor Force Survey is used to estimate the public wage premium. A standard Mincerian wage regression is used to calculate the average wage differential between public and private-sector workers (Kingdom of Lesotho, Selected Issues Paper 2023).

$$\ln(w_{ijd}) = \theta * Public_i + \beta * X_i + \gamma_j + \delta_j + \varepsilon_{ij},$$

where $ln(w_{idj})$ is the natural logarithm of wage income; $Public_i$ is a dummy that takes the value of 1 if individual i is employed in the public sector and zero otherwise; X_i is a set of individual characteristics, including age, age squared, gender, educational attainment; and γ_j and δ_j are region and job type fixed effects, respectively The "public sector" is defined to include those employed in national government, local government, and parastatals, while the "private sector" includes those employed formally in the private sector, households, and self-employed in non-farm enterprises. The coefficient of interest, θ, measures the wage premium for public sector workers (if positive).

5. The estimated average public wage premium is 61 percent when controlling for individual characteristics (age, gender, education, rural/urban status). This premium is higher than the emerging market and developing economies' (EMDEs) average public wage premium of around 12 percent.

6. The level of public sector employment should be consistent with targets for public sector services quality and delivery. That is, employment should be sufficient to entail, effective provision of public services, but hiring should be based on a competitive labor market.

7. Public sector wages should be competitive and reflect the productivity of labor. High public sector wage premiums that are not productivity driven reduce private sector competitiveness

as they increase reservation wages. A large wedge between public and private wages, encourages a dual labor market. Accounting for non-wage allowances and job security in the public sector further reduces the ability of the private sector to compete for talent. A structure of public wages that is competitive and reflects market pricing is a first step to allow a dynamic and competitive private sector to emerge.

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