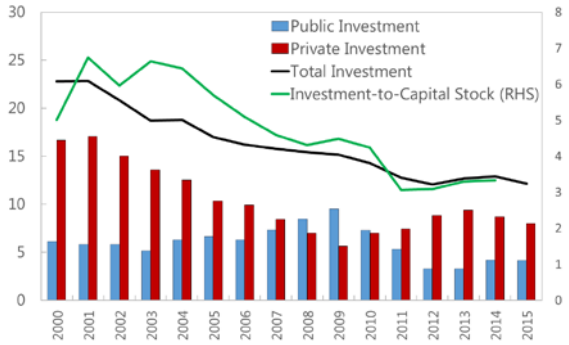
INVESTMENT, EMPLOYMENT, AND INCLUSIVE GROWTH IN SWAZILAND[1]

1. Since 2010, growth in Swaziland has been sluggish and private investment declining, while unemployment remained high and employment has been little responsive to growth.

- *Sluggish growth and declining investment rates.* Growth performance over the last decade has been held back by a negative contribution to growth by capital formation, which has been associated with a decline in the private investment to GDP ratio. Despite a recent increase in public investment, overall investment has declined from 16.7 percent of GDP in 2000 to 8 percent of GDP in 2015.

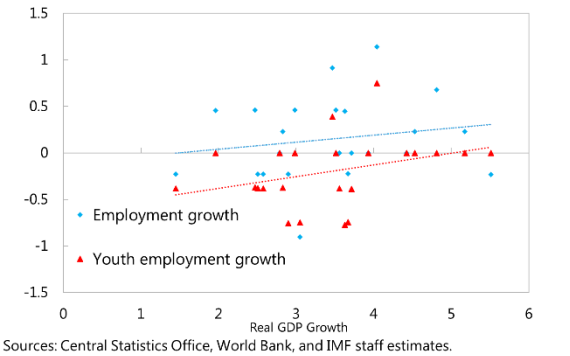
Declining Gross Fixed Capital Formation 2000–2015
(Percent of GDP)



Sources: Central Statistics Office, Penn World Tables, and IMF staff estimates.

- *High unemployment and employment little responsive to growth.* Over the last few years, the unemployment rate has remained persistently high at around 28 percent of the labor force, and higher than in other lower-middle income countries (the regional estimated unemployment rate is 5.3 percent).[2] In addition, despite growth recovered in the post-2010 crisis, employment has changed little, making it unresponsive to growth and signaling a possible structural phenomenon. Staff analysis confirms the limited inclusiveness of growth in Swaziland. Following Ball and others (2016), we regress changes in unemployment rates and employment growth on real GDP growth (Appendix I). Results confirm that the responsiveness of the unemployment rate to GDP growth—the so-called Okun's coefficient—is not significantly different from zero, suggesting that the Okun's law does not hold in Swaziland. Moreover, coefficients measuring the

Employment growth and GDP growth, 1992–2014
(Percent)



Sources: Central Statistics Office, World Bank, and IMF staff estimates.

[1] Prepared by P. Ganum.

[2] According to the latest labor force survey (2013), the unemployment rate was 28.1 percent (28.5 percent in 2010). For analysis, this paper relies on estimates from the World Bank Development Indicators based on International Labor Organization (ILO)'s data, which provide time series estimates for unemployment at around 23 percent over the period 1992–2014. In July 2017, a new revised series was issued, covering two additional years, that could not be used for this paper.

employment growth responsiveness to GDP growth display the right (positive) sign, but are statistically insignificant, confirming the limited inclusiveness of growth.

2. Promoting growth and employment are critical developmental priorities for Swaziland. They are essential to address the high poverty rate (63 percent of the population lives in poverty) and income inequality (one of the highest in the world). Acknowledging these priorities, authorities have developed and have been implementing an Investor Roadmap (2005), and a post-2010 crisis Economy Recovery Strategy (2011), and have established a Swaziland Investment Promotion Authority (SIPA) to attract and promote domestic and foreign investment.

A. What Explains Low Private Investment and Responsiveness of Employment to Growth?

3. International comparisons suggest that specific structural impediments are limiting both private investment and the responsiveness of employment to growth. Three factors seem to play a role. First, skill mismatches in the labor market in Swaziland are particularly high. Second, for a long period, wage dynamics have been exceeding productivity trends in the economy. Finally, Swaziland's business regulations and institutional environment are little conducive to business development.[3]

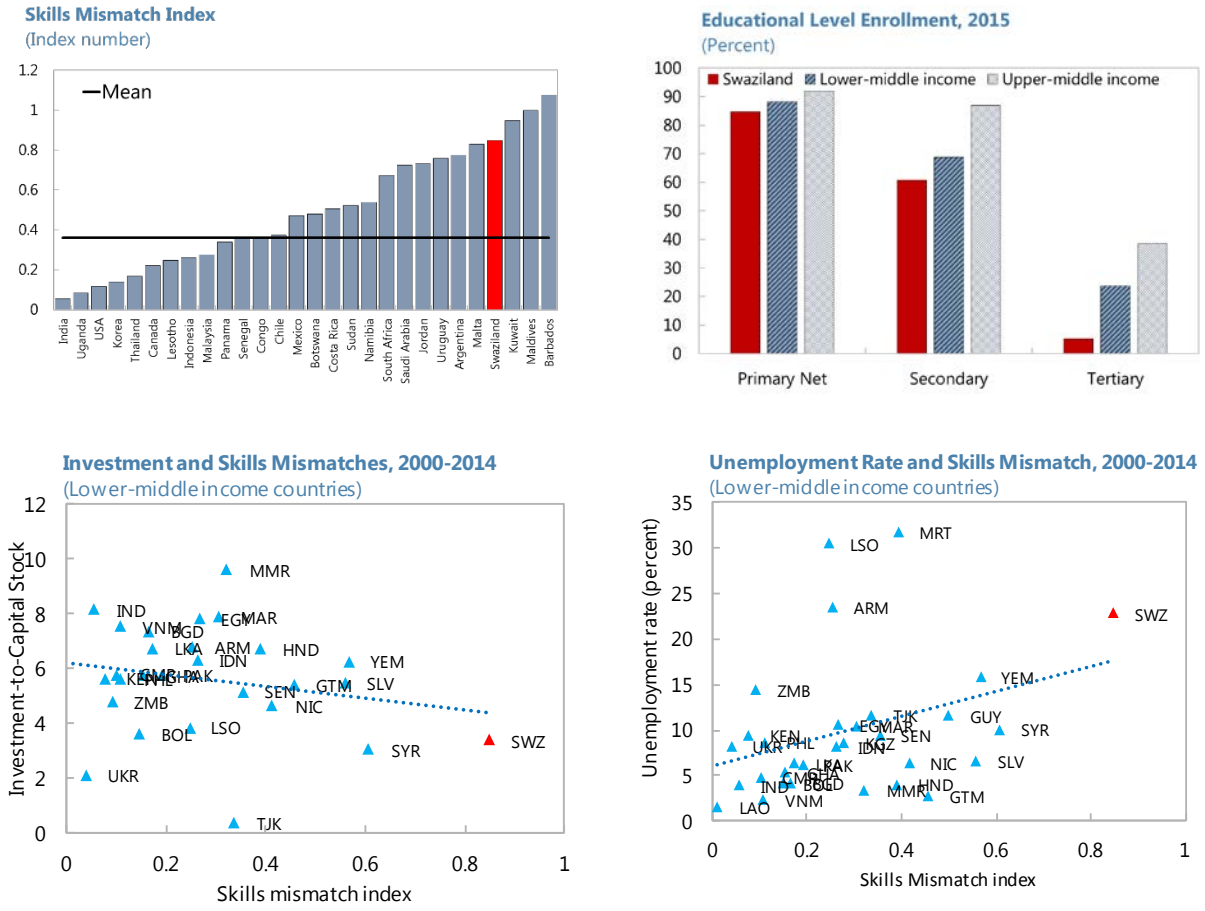
Skill Mismatches

4. Swaziland has very high skills mismatches in the labor market, which are usually associated with poor employment and investment performance. Following Estevao and Tsounta (2011), we construct, with some adjustments due to data availability, a skill mismatch index for 139 countries (Appendix II). According to the index, Swaziland has one of the highest skills mismatch index in the world, ranking 136th out of 139 countries (Figure 1). One possible source of such mismatch can be found in lower educational attainments particularly at the secondary and tertiary level compared to other lower middle income countries, i.e., there is a relatively low supply of skilled labor force in Swaziland. Past studies have shown that high skill mismatches are typically associated with higher unemployment rates.[4] Moreover, a gap between occupational skills needed in given industries and those available in the labor force is likely to affect firms' decision to invest as industries might find difficult to grow without an adequately skilled labor force.

[3] The following analysis relies on third party indicators that should be interpreted with caution due to limited number of respondents, cross-country differences in survey sample size, standardized assumptions and, in some cases, their perception-based nature.

[4] See for instance, Estevao and Tsounta (2011) for the U.S., and Stepanyan and others (2013) for selected small middle-income countries

Figure 1. Investment, Unemployment and Skills Mismatch Index



Sources: Barro-Lee, Central Statistics Office, ILO, World Economic Forum, Penn World Tables, and IMF staff estimates.

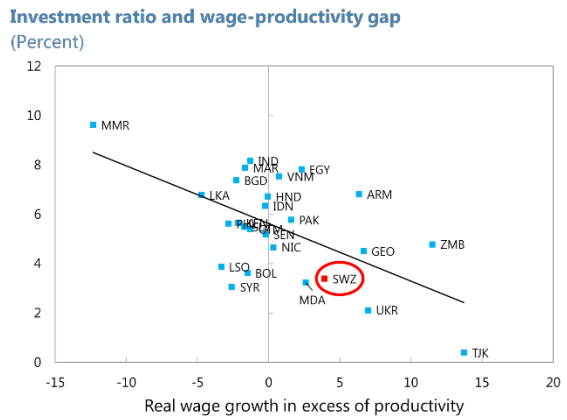
Disconnection Between Wage and Productivity Trends

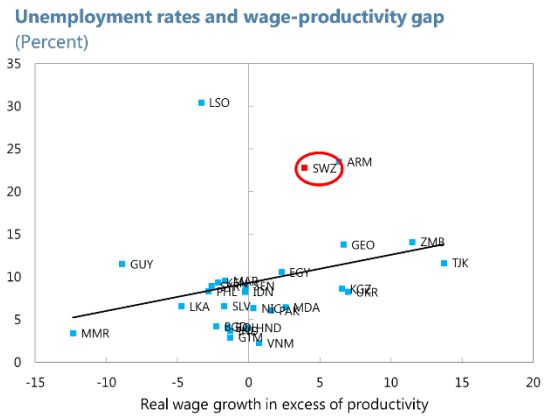
5. Disconnection between wages and productivity dynamics is hurting investment and keeping unemployment rates high. Swaziland has a large gap between wage dynamics and productivity trends. In particular, given the prominence of the public sector in the economy, fast increasing public wages generally drive private sector wages, generating a gap with productivity. Cross-country analysis suggests that this gap is associated with both high unemployment and low private investment rates.[5] Previous studies find that real wages growth above labor productivity

[5] The wage-productivity gap is constructed as the difference between wage growth and labor productivity. Wage growth is calculated using ILO's annual wage growth dataset consisting of mean growth in real earnings of employees. Given data limitations, the wage growth for Swaziland is constructed by using annual wage cost per head deflated by CPI. Labor productivity is from the ILO's annual (labor productivity dataset and is measured as output per worker. The wage productivity gap index is the average of the above difference over the period 2000–2014. This yields a dataset covering about 28 middle lower-middle income countries.

trends can contribute to keep unemployment rates high.[6] At the same time, rising labor costs hurt firms' profitability, which negatively affects investment decisions and new investments as well as competitiveness, thus discouraging foreign investment. Cross-country correlations for lower-middle income countries show that in general the gap between wages and productivity is associated to lower investment and higher unemployment.

Investment, Unemployment and the Wage-Productivity Gap



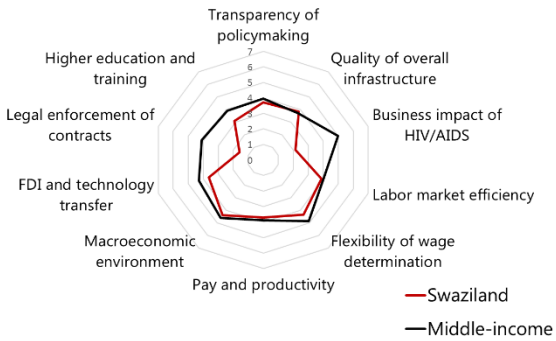


Sources: Central Statistics Office, ILO, World Bank, Penn World Tables, and IMF staff estimates.

Rigidities in the Business Environment

6. Swaziland presents several weaknesses in the business environment that can potentially limit job creation and investment. Swaziland's ranking in the Global Competitiveness indicators has recently worsened, and in the 2015–2016 period the country ranked 128th out of 140 economies. Swaziland ranks clearly below the average of middle-income countries in legal contract enforcement (it attains 1.59 compared to an average of 4.1 points, on a 1–10 scale), higher education and training (3.1 against an average of 3.9 points, on a 1–7 scale), and the business impact of HIV (with an index of 2.1 compared to an average of 5, on a scale 1–7 with high indicating less negative impact) given the very high HIV prevalence in the country. This highlights areas that affect competitiveness where there is significant room for improvement. We show below

Business and Labor Market Indicators, 2015
(Global Competitiveness indicators values 1-7 (best), Fraser Institute indicators values 1-10 (best))



Sources: World Economic Forum, Fraser Institute, and IMF staff estimates.

[6] See for example "The Challenges of Small Middle-Income Countries in sub-Saharan Africa", IMF 2013.

that improved quality of the business and institutional environments is associated to better growth and employment performance.

B. Dividends from Structural Reforms

7. Staff analysis suggests that lower skills mismatches and better connection between wages and productivity have the potential to increase private investment. Following IMF (2015), estimating an investment accelerator model for middle income countries during 2005–2014 suggests that skill mismatches are negatively correlated to investment and better connection between wages and productivity is positively associated to investment.[7] In addition, more flexible frameworks in determining wages (a measure of labor market rigidities) support higher investment. There are indications that business environment indicators, such as protection of property rights are positively related to investment (Table 1).

Table 1. Factors Affecting Private Investment Across Middle Income Countries, 2005–2014

DV: Private Investment-to-Capital Stock	(1)	(2)	(3)	(4)	(5)
L. Real GDP growth-to-Capital Stock	0.073008***	0.102276***	0.117042***	0.111270***	0.103427***
	(0.012177)	(0.017234)	(0.021586)	(0.021285)	(0.021540)
Real lending rate	-0.000373**	-0.008990	-0.052116***	-0.050070***	-0.050213***
	(0.000165)	(0.007725)	(0.014726)	(0.014499)	(0.014771)
Capital inflows	0.058260***	0.028827***	0.046500***	0.043946***	0.048195***
	(0.006641)	(0.007300)	(0.008175)	(0.008050)	(0.008124)
Terms of trade % change	0.001976	0.003618	0.001740	0.004159	0.004402
	(0.003367)	(0.005267)	(0.006061)	(0.005897)	(0.006013)
Skills Mismatch Index		-1.953968**			
		(0.880506)			
Flexibility of wage determination (index)			0.538911***		
			(0.193869)		
Connection between pay and productivity (index)				0.833444***	
				(0.185157)	
Property rights (index)					0.891455***
					(0.188414)
Constant	6.147760***	6.562566***	3.171854***	2.572003***	2.344833***
	(0.069006)	(0.323535)	(0.977458)	(0.743541)	(0.780607)
Observations	1,503	673	432	432	424
Country FE	YES	YES	YES	YES	YES
Adjusted R2	0.0271	0.0122	0.0824	0.112	0.124
No. countries	63	48	57	57	56

Notes: * denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

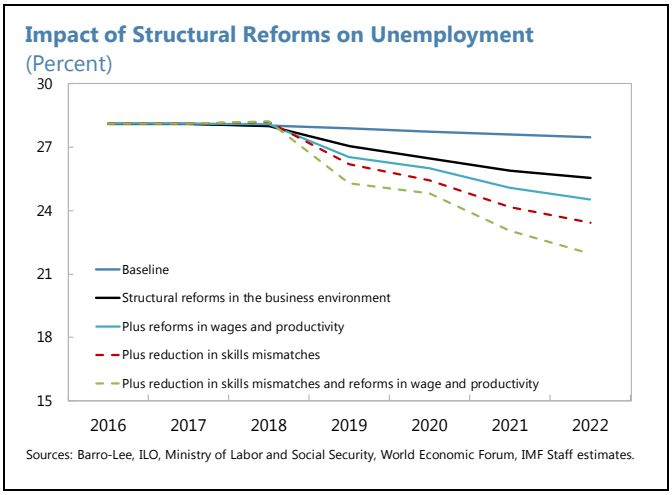
[7] Regressions in Table 1 include a set of controls (real GDP growth as percent of the capital stock, real lending rate, capital inflows, and changes in the terms-of-trade). All controls show the expected sign. The set of independent variables following the controls are indices obtained from the World Economic Forum Global Competitiveness Indicators.

8. Cross-country analysis suggests that a better business environment and health attainments, lower skill mismatches, and close wage-productivity dynamics have the potential to increase the responsiveness of employment to growth. Recent panel regressions by An and others (2016) and Ball and others (2016) find evidence that a better business environment—proxied by a number of indicators—is positively correlated with the employment-to-output elasticity. Swaziland has significant gaps in several businesses, institutional, as well as health and education indicators (Table 2), suggesting the country has large margins for improvement in various areas that can potentially affect the responsiveness of employment to growth. Drawing on An and others (2017) and Ball and others (2016), staff expanded the original analysis to include a skill mismatch indicator, and institutional, health and education attainment indicators. Analysis suggests that improvements in the following areas have the potential to increase the responsiveness of employment to growth, achieving more inclusive growth:

- Improving the business and institutional environments, e.g. easing the conditions for doing business, strengthening the enforcement of contracts, protecting property rights, fostering judicial independence;
- Improving the wage and productivity dynamics, e.g. limiting public wage dynamics, increasing wage flexibility, increasing labor productivity
- Strengthening educational and health outcomes, e.g. lifting secondary and tertiary education level enrollment rates and reducing the HIV prevalence rate;

The positive coefficients in Table 2 on columns (1) – (4) imply that an improvement in the areas mentioned above should improve the responsiveness of employment to growth. While the negative sign of coefficients in columns (5) – (7) show that an improvement (that is a reduction) in the skill mismatches, in the excess of wage growth above productivity, and in the number of procedures to start a business should work in the same direction.

9. Structural reforms could potentially have the double dividends of lifting long-term growth and reducing unemployment. As an illustration, we assume the labor force grows as at the average rate of growth of the population during the past 15 years, and employment follows the path predicted by ILO estimates and grows in response to economic growth given the employment-to-GDP elasticity estimated in Appendix I. The estimation of potential gains from improving key indictors is conducted in two steps. As a first step, we project investment, and subsequently the impact on GDP growth under the assumption that investment will grow at the rate implied by its predicted path using coefficients from Table 1. Furthermore, to



predict investment's path and the impact on growth, we assume Swaziland gradually closes the gap in skill mismatches, flexibility of wage determination, and pay and productivity with the mean country over the course of five years starting in 2018 as structural reforms are implemented. As a second step, using the coefficients estimated in Table 2, and assuming that Swaziland closes the existing gap with the mean country in the key areas highlighted above, we simulate the behavior of the unemployment rate under different scenarios in which structural reforms would boost both growth and the responsiveness of employment to growth. The most promising areas[8] of structural reforms are: (i) improving education outcomes to reduce skill mismatches, (ii) aligning wage growth with productivity growth, and (iii) reducing rigidities in the business environment, which together would reduce the unemployment rate from about 28.1 percent to 22 percent. In this exercise, we found that there seem to be double dividends of performing structural reforms that can boost private investment and thus growth, as well as its inclusiveness.

Table 2. Business and Labor Market Indicators and Predicted Increase in the Employment-to-Output Elasticity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Judicial independence	Property Rights	Business Impact of HIV	Tertiary enrollment rate	Skills Mismatch Index	Wage - productivity dynamics	Number of procedures to start a business
1st Quartile	3.7	3.8	5.0	30.8	0.2	-1.6	6.0
Mean	5.4	4.5	5.6	50.4	0.4	0.6	20.6
3rd Quartile	6.9	5.3	6.3	70.0	0.5	2.1	25.0
Swaziland	3.1	4.3	2.1	6.0	0.8	6.7	38
Distance from mean	2.3	0.2	3.5	44.5	-0.4	-6.1	-17.4
Change in employment to output elasticity associated to a unit increase in each index							
	0.110***	0.142***	0.184***	0.00767***	-1.614***	-0.0337†	-0.0409***

Notes: An increase in indices (1)– (4) indicates an improvement in business and labor market conditions; an increase in indices (5)–(7) denotes greater skill mismatches, rising labor costs, and impediments to start a business. * denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level. † denotes significance at the 16 % level.
Sources: An, Ghazi and Gonzalez Prieto (2016); Ball, Furceri, Leigh, and Loungani (2016); Barro-Lee, Fraser Institute, World Economic Forum, IMF staff estimates.

10. In sum, Swaziland may benefit from implementing structural reforms that boost private investment, and strengthen the nexus between employment and growth. Structural measures aiming to reduce skills mismatches by improving educational outcomes in the population, aligning wage growth with productivity, strengthening institutions, and reducing rigidities in the business environment seem to be at the forefront of private sector development, boosting investment and sustainable job creation.

[8] The coefficients used from Table 1 are the following: (i) skill mismatches in the labor market, (ii) flexibility of wage determination, and (iii) connection between salaries and productivity. These are combined with the following coefficients from Table 2: (i) tertiary enrollment rate, (ii) number of procedures to start a business, and (iii) wage-productivity dynamics.

Appendix I. Okun's Law in Swaziland

Following Ball and others (2016) and using 1992–2014 data, we regress changes in unemployment and employment growth on real GDP growth, including a constant and lagged dependent variable. Results confirm intuitions from descriptive analysis. The coefficient measuring the responsiveness of the unemployment rate to GDP growth—the so-called Okun's coefficient—is not significantly different from zero, confirming that the Okun's law does not hold in Swaziland data (the coefficient has also the wrong sign). Moreover, coefficients measuring the employment growth responsiveness to GDP growth display the right (positive) sign (when an autoregressive term is introduced) and statistically significant (for the lagged variable). In Swaziland, where the labor force participation rate has been stable, a low responsiveness of unemployment to growth is almost entirely due to the low responsiveness of employment to growth.

Responsiveness of Unemployment and Employment Growth to Real GDP

	(1)	(2)	(3)	(4)
	Change in Unemployment	Change in Unemployment	Employment growth	Employment growth
Real GDP growth	-0.040246	-0.040908	-0.113047	0.067624
	(0.049556)	(0.051892)	(0.148025)	(0.101278)
Lagged dependent variable		0.097504		0.720817***
		(0.223893)		(0.146562)
Constant	0.113048	0.126775	1.942679***	0.145688
	(0.178125)	(0.186793)	(0.532064)	(0.484264)
Observations	23	22	23	22
R-squared	0.030451	0.047448	0.027023	0.568253

Notes: Standard errors in parentheses, * denotes significance at the 10% level

Sources: ILO, World Bank, and IMF staff estimates.

Appendix II. Skill Mismatch Index

In our analysis, we computed a skills mismatch index (SMI) which measures the gap between skill demand and skill supply in the labor market. Following Estevao and Tsounta (2011), we computed the SMI for each country *i* at time *t* in a sample of 139 countries in the world from 2000 to 2014, using the following formula:

$$SMI_{it} = \sum_{j=1}^{3} (S_{ijt} - M_{ijt})^2$$

Where *j* is the skill level; S_{ijt} is the percent of the population with skill level *j* at time *t* in country *i*; and M_{ijt} is the percent of employees with skills level *j* at time *t* in country *i*. The skill level supply is proxied by Barro and Lee (2010) data on percent of the population with certain educational attainment, using primary education (as low skilled), secondary education (as semi-skilled), and tertiary and college (as high-skilled). Skill level demand is proxied by percent of employment in each sector:[1] agricultural (as low-skilled), industry (as semi-skilled), and services (as high-skilled) using data from the International Labor Organization.

[1] The assignment of skill level to each sector is based on data availability by broad sectors rather than specific industries as in other studies. We acknowledge that the SMI index might overestimate the mismatch in the labor market if the skill level demanded in the services sector for instance is for an educational attainment less than tertiary and college level.

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