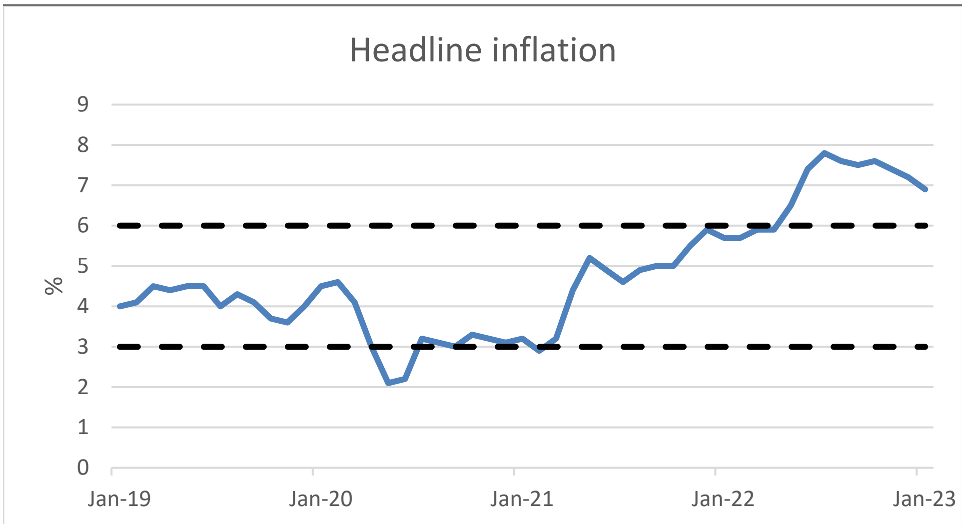
A. Inflation and labour markets in the wake of the pandemic

Submission by the South African Reserve Bank – Deputy Governor Naidoo[1]

1. What have been the main drivers of inflation since its flare-up? How far has this reflected pandemic-specific exogenous factors (eg uneven reopening of the economy and international supply disruptions) and policies (eg strong fiscal and monetary policy easing)? To what extent have fiscal measures sought to reduce price pressures linked to higher commodity prices (eg subsidies/taxes/price caps)?

South Africa's headline inflation remained subdued throughout the Covid-19 period but breached the upper limit of the 3–6% target range in May 2022 (Graph 1). Headline inflation, reached a 13-year high of 7.8% in July 2022, driven largely by food and fuel price increases, reflecting both high global food and oil prices, as well as a weaker rand exchange rate.

Headline inflation in South Africa (monthly) Graph 1



Headline inflation has eased to 7.1% in March 2023. However, food inflation has yet to peak. Meanwhile, core inflation remains sticky, reflecting increased pass-through from high producer prices, rotation of demand back to services and a continued weaker nominal rand exchange rate that has aggravated imported inflation. The output gap has closed, largely a result of the sharp decline in potential growth over the past year due to the increasing intensity of load-shedding.

Much like the rest of the world, South Africa has experienced supply chain bottlenecks since the onset of the Covid-19 pandemic. Bottlenecks initially due to

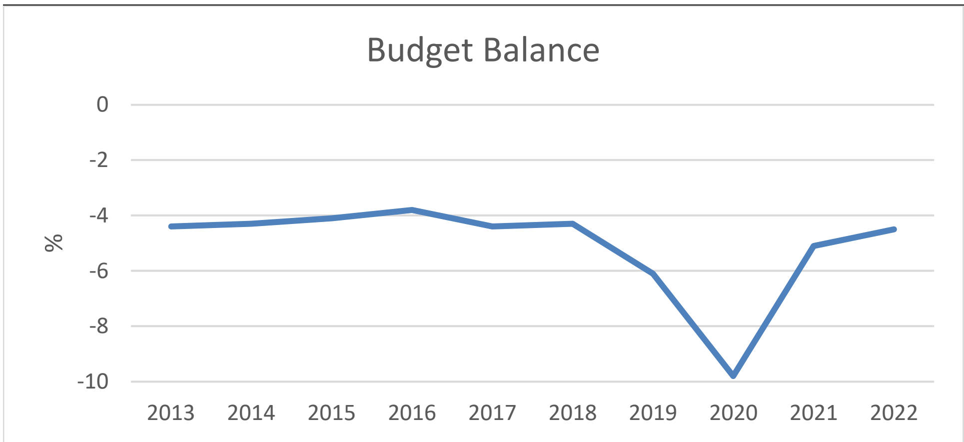
[1] Various parts of the submission draw from a working paper by Loewald et al. (forthcoming).

lockdowns were aggravated by the outbreak of the Russia-Ukraine conflict in February 2022, as well as idiosyncratic domestic factors such as the floods in April 2022 and ongoing electricity load-shedding. As a result, South Africa's composite supply chain pressure index remains at historically high levels, despite easing. Going forward, easing global supply chain pressures are expected to feed through to the domestic economy, relieving some price pressures. However, expected drought in the major grains producing regions such as Brazil, United States and Europe and the ongoing military conflict in Ukraine remain a threat to global, and domestic, supply chain networks over the short to medium term.

The South African Reserve Bank (SARB) sharply lowered the repurchase (repo) rate at the onset of the Covid-19 pandemic, cutting rates by a cumulative 2.75% to a low of 3.50%. As the economy recovered, the SARB moved early to begin rates normalisation, which helped to better manage demand growth, avoiding the sharp swings in demand from services to goods and then back to services as observed in other jurisdictions. However, with both inflation and inflation expectations sharply higher since the second half of 2022, the SARB's Monetary Policy Committee (MPC) stepped up the pace of repo rate normalisation over the past year, raising the repo rate by a cumulative 350 basis points in the six MPC meetings spanning from May 2022 to March 2023.

South Africa's fiscal policy similarly sought to cushion the adverse effects of the pandemic, with the budget deficit rising markedly from approximately 6% of GDP in 2019 to 10% in 2020 (Graph 2). Fiscal spending included tax relief, a loan guarantee scheme for SMEs, income support and expansion of social support grants. As the economy has recovered from the Covid-19-induced recession of 2020, most of the fiscal support has been withdrawn, except for the social relief of distress grant which is expected to expire in March 2024. More recently, however, with rising domestic fuel price pressures following the Russia-Ukraine conflict, the South African government implemented a temporary fuel relief instrument to ease fuel price pressures by reducing the regulated price of fuel by ZAR 1.50 per litre between April and August 2022. The relief has since been withdrawn.

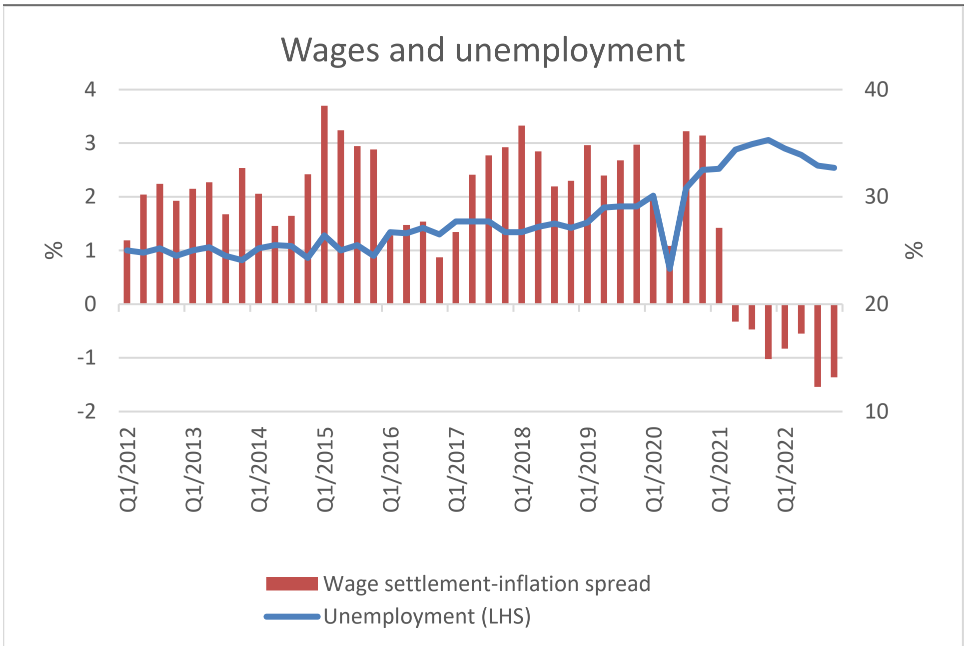
South Africa's budget balance (annual) Graph 2



2. Have wage increases matched the rise in inflation? Do you see any evidence of second-round effects through the labour market and of wage-price spirals? If not, do you expect to see them in the near future?

Wage settlements in South Africa generally trended above headline inflation pre-Covid. However, this trend reversed in 2021, as headline inflation accelerated and wage growth dipped below inflation (Graph 3). This is consistent with the mainly external (terms of trade loss) and supply side (electricity shortage) origin of production cost increases, which limits the room for wages and profits.

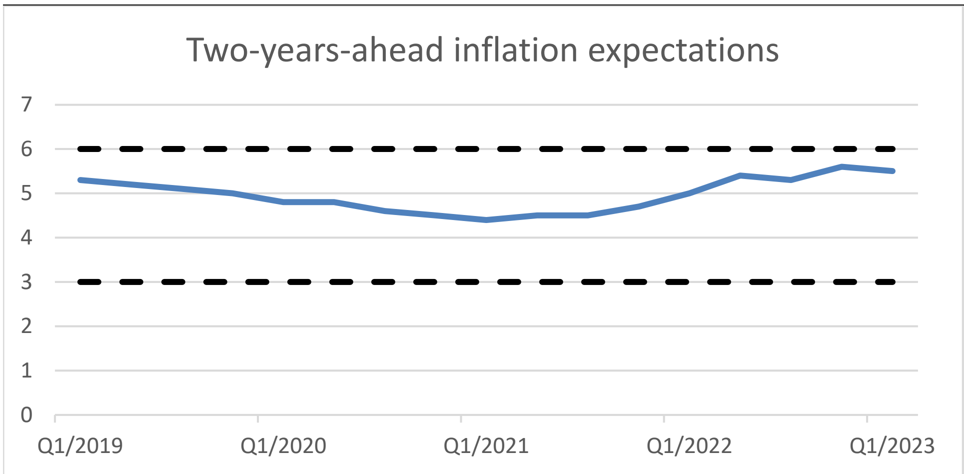
Wages and unemployment in South Africa (quarterly) Graph 3



Food and transport costs are a major cost item for most South African workers. High inflation for these components therefore tends to influence wage bargaining, especially in unionised sectors. With currently elevated food and energy prices, the risk of second-round effects has increased. Core inflation has picked up pace over the past few months and is projected to average above the 4.5% midpoint of the target range over the medium term. To date, the rise in core inflation largely reflects the effects of a weaker rand exchange rate, elevated global goods inflation and spillover effects from the high fuel and food inflation, which have pushed transport, and hotel and restaurant inflation sharply higher.

At the same time, inflation expectations in South Africa have shifted markedly higher as inflation has risen. Of concern is that the two-years-ahead inflation expectations have risen from 5.3% in the third quarter of 2022 to 5.6% in the fourth quarter and remained elevated at 5.5% in the first quarter of 2023 (Graph 4). These factors together have heightened the prospect of more enduring second-round effects. At this point the risk of a wage-price spiral is assessed as relatively low as average wages have risen by between 1 and 2 percentage points less than the consumer price index (CPI) in 2022. However, historically wage setting in South Africa tends to be influenced by adaptive expectations, suggesting that wage negotiations may be more difficult in 2023, given the real wage erosion in 2022.

Two-year ahead inflation expectations (quarterly) Graph 4



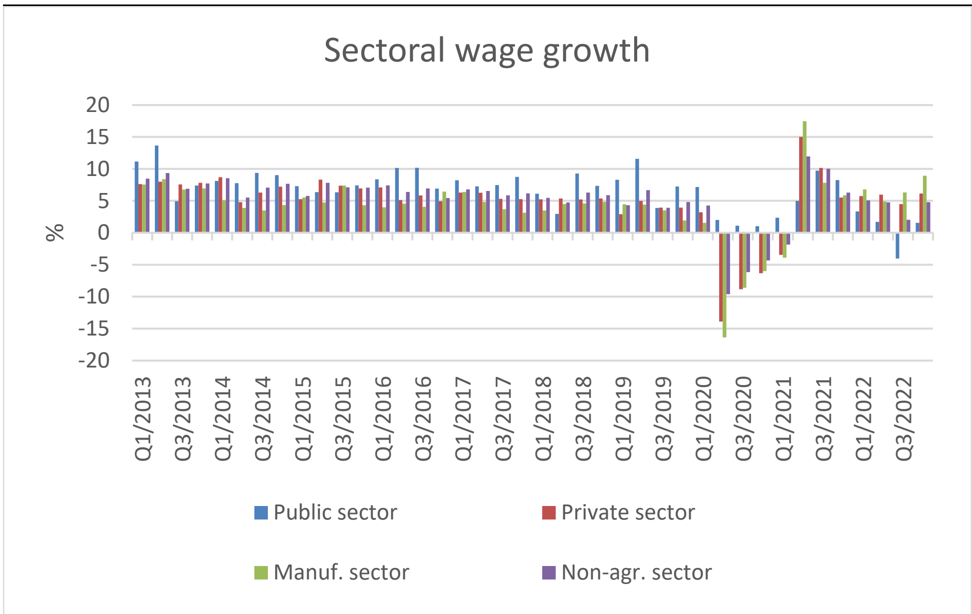
3. How much slack is there in the labour market at the aggregate and sectoral levels, including differences between the formal and informal sectors? How even have wage increases been across industries or labour market segments?

Data from Statistics South Africa's Quarterly Labour Force Survey (QLFS) show that the Covid-19 pandemic has exacerbated South Africa's pre-existing labour market challenges. The official unemployment rate jumped to 35.3% in the fourth quarter of

2021, although it has moderated to 32.7% in the fourth quarter of 2022. Nonetheless, unemployment remains much above the average of 28.7% recorded in 2019.[2]

Wage increases in 2022 have varied across industries and segments with agreements ranging from 3.0% in the public sector to as high as 13% for private security. These outcomes are not necessarily the result of relative tightness in each industry but rather the result of a combination of the higher price inflation environment at the time of negotiating multi-annual wage agreements and the push by unions to recover lost real wages in the previous year (Graph 5).

Sectoral wage growth (quarterly) Graph 5



B. Inflation and labour markets: structural aspects

1. What are the key structural features of the labour market that influence wage formation and the inflation process? How have they evolved over time and why (eg policy reforms, globalisation etc)? Importantly, how far has the behaviour and history of inflation itself influenced those features?

Various structural features of the labour market influence wage formation and inflationary pressure. Low educational quality and entrepreneurship reduce the employability of job seekers, while high commuting and other job search costs and social grants drive up reservation wages on the supply side (IMF, 2021; Shah &

[2] The expanded unemployment rate rose to a record high 46.6% in the third quarter of 2021 but has since moderated to 42.6% in the fourth quarter of 2022; higher than the 2019 average of 38.4%. The divergence between the broad and narrow measures of unemployment is largely explained by discouraged workers. Although the share of South Africa's discouraged workers in the labour force has declined as the economy has recovered, it remains at elevated levels.

Sturzenegger, 2022). On the demand side, regulation and wage bargaining arrangements raise costs above levels needed to clear the labour market (IMF, 2021). This is in large part due to insider-outsider dynamics that reflect monopsony market power, and a widening wage premium for more highly skilled workers in closed-shop workplaces and sectors (Hausmann, 2008).

Despite rising unemployment, wage settlements remained above inflation. The result is that job-shedding and rising capital intensity, rather than real wage rebalancing, has become the primary way in which South African firms maintain productivity growth (Nattrass, 1999; Bhorat, et al., 2009). One driver of these insider-outsider dynamics comes from a regulatory framework that create incentives for bargaining structures to negotiate wages or prices as entry barriers for new suppliers or smaller enterprises and stifles dual-level bargaining. Another driver is from sheltered public sector wages that command a large and significant wage premium (Kerr & Wittenberg, 2021).

There has also been a significant increase in returns to higher education over the past decade, with wages advancing faster for higher skills in the economy. Poor educational outcomes, low levels of skilled worker immigration and employment equity policies further increase the skills premium (Hausmann, 2008; Loewald, et al., 2021). Progress in addressing the skills mismatch in South Africa has, to date, been limited. Recently, however, the government has moved to ramp up skilled immigration into the country, with the first step of gazetting the skills gaps completed.

Minimum wages in the country also play an important role in the wage formation process. In late 2018, a national minimum wage was enacted, which stipulates a minimum hourly wage for work, regardless of skill or sector. Prior to 2018 minimum wages were set at the sector level. Bhorat et al (2021), provide an analysis of the national minimum wage policy in South Africa, focusing on its impact on wages, employment and hours of work. The findings suggest that the national minimum wage has had no statistically significant impact and there is no evidence of a reduction in employment.[3]

Although there is no strict indexing of wage increases to inflation (see also question 4 below), inflation dynamics do influence wage formation in South Africa. When inflation is high (using both recent past and current inflation), unions fight more aggressively to secure wage increases loosely 'indexed' to inflation, with the goal of protecting real wages. On the other hand, when inflation is low, unions are less likely to demand inflation-linked increases but would rather negotiate for above-inflation increases.

[3] Caution needs to be taken when drawing inferences from the results given the short-time frame of the analysis (a 12-month period).

2. What is the role of the informal sector in the labour market and its relationship to the formal sector (eg wage spillovers across the two sectors)?

South Africa's informal sector is relatively small compared with peer emerging markets, accounting for just 18.5% of total employment (Stats SA, 2023).[4] The small informal sector partly explains the high unemployment in South Africa as the unemployed are not absorbed by the informal sector.

Nearly two thirds of informal sector workers in South Africa are men. The QLFS data show that a high proportion of workers in the informal sector work in the trade, community and social services, as well as construction industries, and that more than half of informal workers are concentrated in three of the nine provinces in the country, namely: Gauteng (31.6%), Kwa-Zulu Natal (13.9%) and Limpopo (11.5%) (Stats SA, 2023). Other features of the informal sector in South Africa include racial bias, lower levels of educational attainment and lower income levels (Blaauw, 2017, p. 348).

There is evidence of linkages between the informal and formal labour markets in South Africa Ince (2003), Valodia et al (2006), Davies and Thurlow (2010), and Nackerdien and Yu (2019)). For example, Ince (2003) who investigated backward and forward linkages by informal clothing manufacturers in Durban found that manufacturers in the informal economy sourced their inputs in the formal economy and that garments produced in the informal sector often ended up in formal retail stores.

3. How centralised is the bargaining process? How has the nature of wage bargaining changed over time? Has centralisation helped or hindered inflation control?

Godfrey, et al. (2007) and Godfrey (2018) show that South Africa's bargaining system is partially centralised at a sectoral level and is uncoordinated. The scope of centralisation has shrunk over time with low levels of unionisation in certain sectors and generally, but highly centralised in other, large sectors. However, the legal framework sets a low bar for the imposition of agreements negotiated by a portion of many sectors' businesses and workers to all other firms and workers in a sector. This provides strong incentives for larger, more productive firms to reach agreements that are uneconomic for smaller firms. They use collective bargaining to limit domestic competition from less capital-intensive rivals and generally push up productivity in the economy in a level sense if not dynamically (Hausmann, 2008). The number of union members has grown over the last decade, but this has been driven by the public sector, and membership is becoming more splintered.

In a broad sense, the bargaining system generates wage and price outcomes inconsistent with inclusive growth. Instead, South African economic agents choose, directly and indirectly, to deepen the capital intensity of production at the expense of labour. However, most South African workers (approximately 70%) are not unionised, and for these workers, wage negotiations take place at the firm/plant level.

4 Stats SA defines the informal sector according to the international standard agreed at the International Conference for Labour Statistics. See definitions from Stats SA (2023, p.19).

4. How important are implicit and explicit wage indexation mechanisms? Have these changed over time? Has policy deliberately tried to reduce them?

The level of inflation plays a role in wage negotiations, primarily as a reference point, however, price setting remains above the inflation target in key sectors reflecting the microeconomic inefficiencies that constrain employment and growth. No formal wage indexation mechanisms are used (Mihaljek and Saxena, 2010), but agreements are typically set for three years and pegged against inflation plus a productivity buffer (Bassier, 2021). In the past, public sector wages were indexed to inflation. However, in 2020 the Constitutional Court supported the government's decision to backtrack on the last leg of a three-year collective agreement on grounds of affordability, which has helped government in its fiscal consolidation efforts. However, in 2023 public sector unions successfully negotiated for an above inflation increase in wages for the next two years. Inflation is generally used in cost-of-living adjustments (COLA) which can be included in employment contracts. The National Treasury prepares public entity guidelines for costing and budgeting for employees' compensation. In these guidelines, COLA can be indexed to CPI, for example: the 2023 medium-term expenditure framework guidelines indicate CPI adjustment for the year 2024/25.

5. What is the role of minimum wages or other salaries determined by the government? More generally, what role does the public sector play in the economy-wide wage bargaining process?

The national minimum wage is a recent development in the South African labour market, with its enactment into law having come into effect in 2019. The National Minimum Wage Act notes the "huge disparities in income in the South African labour market" and identifies a need to address both poverty and inequality. The first impact is that of elevating the wages of those previously earning below the set minimum wage. Research looking into the early effects of the introduction of a minimum wage in South Africa has found that in most cases, the introduction of a minimum wage has had a negligible impact on both the level of employment and the number of hours worked despite imposed wage increases.

Beyond determining and adjusting the minimum wage, the government also gets indirectly involved in the wage bargaining processes of other sectors of the economy through its participation in the National Economic Development and Labour Council (NEDLAC). In addition, the Department of Employment and Labour plays an oversight and coordination role over the various bargaining councils in the country. The most notable feature of this oversight function as far as wage setting is concerned is the ability of the minister of employment and labour to extend bargaining council collective agreements to non-parties to the collective agreement that are within a particular bargaining council's scope; thereby affecting the wage level of the entire sector. This aspect is concerning as the extension may force some firms to implement wage increases above their productivity growth rates, which could result either in employment loss and a higher entry barrier for new suppliers or pass-through of the higher costs to consumers through higher prices.

The government is also a major employer and thus influences wages and salaries through public sector wage agreements. The public sector commands a large and significant wage premium that contributes to undermining competitiveness in low skill exposed sectors (Bhorat, et al., 2009). Public sector wage growth has outpaced that of the private sector adding to wage pressures economy-wide, fuelling administered price inflation, and reducing fiscal resources available for other purposes, like public investment (National Treasury, 2020; National Treasury, 2022).

6. How important is domestic and cross-border inward and outward migration in explaining labour market and wage dynamics?

Domestic migration patterns in South Africa have exhibited rural to urban migration, particularly to the larger provinces with more active economies, particularly Gauteng, Western Cape and KwaZulu-Natal. Wage data in South Africa are not disaggregated by province. This makes it difficult to make inferences regarding the impact this migration has had on wages.

From a cross-border migration perspective, the South African labour market is particularly affected by brain drain, which is characterised by a high incidence of the emigration of skilled people out of the country. This movement results in a net transfer of human capital and scarce resources to other countries. Some of the impacts of this movement are lower economic growth, forfeited tax revenues and the loss of potential skills in the next generation as emigrants tend to emigrate with their children (Waller (2006), Leipziger (2008)). The outward migration of skilled individuals also has the potential to further worsen unemployment because skilled and unskilled workers are complementary, particularly if skilled individuals engage in entrepreneurial activities that employ unskilled labour.[5]

With respect to inward cross-border migration, studies have found that migrants were more likely than South African citizens to be employed. As such, the unemployment rates for migrants were significantly lower than that of South African citizens. However, the analysis also found that the employment conditions of migrants tended to be more informal, precarious and with fewer benefits than those of South African citizens (Budlender, 2014; Fauvelle-Aymar, 2014).

7. Do you expect the pandemic to have long-lasting effects on the labour market and, through this, on the inflation process (eg labour supply, technology/automation etc)?

Labour supply has steadily increased as pandemic restrictions have eased and had recovered fully to pre-pandemic levels by the third quarter of 2022. By the fourth quarter of 2022 the unemployment rate was just 2.6 percentage points higher than in the first quarter of 2020 (pre-pandemic). The domestic labour market has not experienced the post-pandemic labour supply constraints that have caused concern in the United States and parts of the eurozone for at least two reasons. First, South Africa did not experience a form of "great resignation" during the pandemic. Second, the level of fiscal support accorded to furloughed workers was much less generous compared with advanced economies. This meant that people returned to the labour market as soon as it was safe to do so. As discussed above, the structural features of the South African labour market have not changed much – skilled labour is still in

5 According to Yu (2022), for every migrant that leaves South Africa there is a potential loss of 10 unskilled jobs.

short supply and union-determined wage settlements remain a robust feature of the labour market and thus price formation processes.

The use of information and communications technology (ICT) rose during the pandemic, with more jobs allowing for either fully working from home or hybrid modes of work. This aspect of the post-pandemic labour market is likely to become a permanent feature of the South African labour market and has the potential to weaken centralised wage bargaining in those sectors in which remote working is possible.

A trend that has emerged in patterns of employment in the post-pandemic recovery phase is that of rapid growth in part-time employment, while full-time employment has grown more slowly. This possibly reflects hesitance by employers to employ on a full-time basis given the high levels of uncertainty in the economy.

While automation poses a potential risk to employment outcomes, particularly given the low skill base of the majority of the workforce, to date there have been no notable disruptions to the labour market or wages. However, this risk should be monitored closely going forward.

8. How do you expect long-term trends (demographics, technical innovation, automation, globalisation/deglobalisation) to affect labour markets, wages and inflation?

South Africa has a youthful population, with a median age of 27 years in 2022 (Worldeconomics.com).[6] The working age population has grown faster than the number of available jobs for several years, resulting in growing youth unemployment. This largely reflects sharply lower GDP growth, particularly over the past decade. The unemployment rate among the youth (those between 15 and 34 years of age) is especially high, averaging 50.5% in the fourth quarter of 2022, compared with the national unemployment rate of 32.7% in the same period. High youth unemployment often results in youth withdrawing completely from the labour market, which partly explains the wide gap between the narrow (official) unemployment rate and the broader unemployment rate. Significant structural reforms are required to improve the school-to-job transition and create sufficient dynamism in the economy to absorb those currently unemployed as well as new entrants to the labour market.

As discussed above, to date there have been no notable disruptions to the labour market or wages resulting from automation. The domestic labour market is relatively insulated and the impacts of globalisation/deglobalisation are likely to remain minimal in the near term.

[6] South Africa's Median Age | Data | Demographics on World Economics

C. Use of labour market indicators in the policy process

1. What are the key labour market indicators that your central bank monitors? How is this information presented to the policy board?

The SARB's Monetary Policy Committee (MPC) focuses on a wide array of labour market indicators to inform its policy decisions, though the forecasting model relies primarily on unit labour costs (ULC). In Table 1 below, the labour market indicators of interest to the SARB are disaggregated into two key pillars: (i) labour force participation and (ii) wage costs.

Labour market indicators

Table 1

Labour force participation indicators	Wage cost indicators
• Government and private sector employment levels. • Labour force participation (both official and expanded definitions). • Number of unemployed people, using the expanded definition (as well as the rate). • Number of discouraged workers.	• Nominal salaries per worker (both public and private sectors). • Total government salaries. • Total private sector salaries. • Total salaries (in both nominal and real terms). • ULC.

The above indicators form important research areas in the SARB and help to inform expected household consumption growth, as well as price pressures. These indicators are presented in the form of historical trends and recent developments. The historical trend is a good way of capturing long-run trends and demonstrate whether indicators have deviated from trend. From these trends, as well as any new developments that may arise, one can predict baseline assumptions over the forecast horizon while recent developments are particularly helpful with respect to the starting points of the forecast.

2. How do labour market indicators enter forecasting and other economic models presented at policy briefings? Has this changed in recent years? Does this depend on the level of inflation?

The SARB uses the quarterly projection model (QPM) as its main forecasting model. In this model, the labour market price pressures are captured via the real ULC gap, which measures compensation relative to productivity. ULC is used to project services inflation over the medium term. The QPM uses the output gap instead of the unemployment rate, in part, because unemployment in South Africa is largely structural in nature.

In addition to the QPM, the SARB also uses a macro econometric (dubbed "the core") model to inform its policy decisions. The core model similarly uses unit labour costs to capture the pricing decisions of firms and their ultimate impact on wage growth. Unit labour costs are calculated as the ratio of total compensation of employees to real GDP at market prices. The average remuneration per worker equation is modelled as a function of inflation expectations and productivity, suggesting that workers will be compensated for inflation and rewarded for increased productivity. In addition to these variables, the unemployment rate (which captures labour market pressures) is also used to explain workers' average wages.

In line with best practice and in the quest to better capture economic relationships and dynamics, some key changes have been made to the SARB's models over time. Over recent years, model development changes have been predominantly within the SARB's QPM model.

Prior to adopting unit labour costs, wage pressures were captured through the real wage gap – a measure of the deviation of the average real wage from its equilibrium. A forecasting performance test of various labour market indicators on core inflation was conducted and it was found that unit labour costs were a better predictor of inflation than average wages. Moreover, further motivation for the change was that real unit labour costs are easier to interpret, in contrast to average real wages which need to be adjusted for medium-term productivity in the QPM.

3. How important are disaggregated data in analysing labour markets and what role do they play in the policy process?

Employment and wage dynamics by sector and industry are both important inputs into both the modelling and policy process. From a monetary policy perspective, the structure of the South African labour market means that unemployment is often a poor indicator of wage pressures.

4. Do you refer to labour market indicators in communicating monetary policy? If so, to which ones?

Monetary policy at the SARB is communicated through two primary channels, namely, the monetary policy statement (MPS) which is published together with the monetary policy decision and the monetary policy review (MPR) which is published twice each year. ULC dynamics as well as nominal wage demands and real wages in relation to productivity growth and the impact on inflation are regular features of the communications, particularly in the MPS. The MPR, on the other hand discusses both the above and broader labour market developments such as employment growth, evolution of total worker compensation, etc.

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