Wages, productivity, and labour’s declining income share in post-Apartheid South Africa

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The Marikana incident in 2012, the five-month-long strike in the platinum industry, the month-long strike by metal workers and the even longer postal worker strike in 2014 suggest that not all is well in the South African labour market. In the period 2009-14 the number of workdays lost due to strikes reached record highs for post-Apartheid South Africa, and labour market unrest reached levels last seen in the turbulent ‘80s. Articles in the financial press suggest that labour relations are precarious, with mistrust between business and labour leaders widespread. Business leaders complain about expensive labour and business-unfriendly labour legislation, while labour leaders complain about persisting inequality.

Even though those in employment are better off than the unemployed poor (Leibbrandt, Woolard, Finn and Argent 2010, Seekings 2014, World Bank 2014 StatsSA 2014a), macroeconomic data indicates that labour’s share in Gross Value Added (GVA) has declined significantly during the first two decades following the first democratic election in 1994 (StatsSA 2014b). GVA comprises two components: labour remuneration and the Gross Operating Surplus, which is capital’s share in GVA. With the ownership of capital and thus income from capital being more concentrated than salary and wage income, one might therefore expect that the falling share of labour and a rising share of capital in GVA contributes to a deterioration of income inequality. The question is “Why did labour’s share decrease?”

International studies (ILO 2013; OECD 2012; Karabarbounis and Neiman 2012; 2013) indicate that the decline in labour’s share in GVA is not unique to South Africa. Indeed, it has been a general trend in most OECD and many emerging market economies for the past three decades. In 26 of the 30 OECD countries labour’s share fell (OECD 2012:113). The OECD (2012:110; 113) reports that while the median labour share in OECD countries was 66.1% in the early 1990s, it dropped to 61.7% in the late 2000s. The ILO (2013) also presents data to show that the fall in labour’s share of income is not limited to OECD countries. If anything, it has been more pronounced in emerging market economies (ILO 2013:44). Even China has seen a significant fall in its labour share (ILO 2013:45).

Various contributors (ILO 2013; OECD 2012; Karabarbounis and Neiman 2012; 2013, Autor and Dorn 2008) suggest that the increasing share of capital and the concomitant decreasing share of labour in GVA originate, among others, in technological change. The last three decades saw large and significant changes particularly in information technology. These technological changes increased the productivity of capital relative to that of labour, hence contributing to a decreasing share of labour in GVA and stagnant or slow-growing wages. The OECD (2012:110) concludes that in OECD countries about 80% of the drop in labour’s share can be ascribed to technological change that cause companies to substitute capital for labour. Another 10% originates from increased global competition that sees companies moving parts of their value chains offshore to benefit from low-cost labour in predominantly emerging market countries (OECD, 2012:110). The OECD (2012, 111) argues that offshoring has undermined the bargaining position of particularly lower skilled workers. This, together with a higher level of decentralisation in labour market bargaining structures in many countries contributed to a lower labour share. Indeed, because in OECD countries the income of the average capital owners exceed the income of the average

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1 Department of Economics, University of the Free State. This article represents a non-technical version of the Presidential Address delivered at the 2014 Annual General Meeting of the Economic Society of South Africa, held at the University of the Witwatersrand.

2 Gross Value Added (GVA) plus net taxes on production and product equals Gross Domestic Product (GDP). Thus, GVA is equivalent to GDP excluding net taxes on production and products. While GDP calculates national income from the expenditure side of the economy, GVA calculates national income from the production side of the economy.
wage earner, there is a strong correlation in OECD countries between the degree to which inequality deteriorated and the degree to which labour’s share fell (OECD 2012:114).

However, the ILO (2013:49) argues that technology and globalisation are not the only factors in the reduction of labour’s share. More specifically, the ILO highlights the role of financialisation and the increasing role of aggressive returns-oriented investment institutions that emphasise higher returns. Financialisation, globalisation, and automation, together with weaker labour market institutions (such as declining union density and deteriorating collective bargaining mechanisms) have undermined labour’s bargaining power and contributed to a fall in labour’s share in income internationally. In its empirical analysis the ILO (2013:51-3) considered the impact of financialisation, globalisation, technology and labour market conditions. In developed countries all four contributed to the deterioration in the share of labour, with financialisation contributing 46%, while globalisation (19%), technology (10%) and labour market conditions (25%) contributed to a much smaller extent. In developing countries technology improved labour’s share (the ILO ascribes this to technological catch-up), but this was more than offset by the negative effects of financialisation, globalisation and weaker labour market institutions. Again financialisation contributed the largest part.

The discussion below will argue that financialisation and more aggressive returns-oriented investment strategies applied by for instance large investment institutions translated into higher required rates of return on capital, which in turn caused an increased implementation of capital-augmenting labour-saving technology that reduces labour’s share in income. A falling share of labour in income also means, by definition, that real wages increase at a slower rate than average labour productivity. Contrary to views frequently expressed in the popular media, productivity has indeed increased faster than wages in South Africa.

1. The falling share of labour in Gross Value Added

Figure 1 demonstrates that the share of labour remuneration in GVA was 56% in 1993, while that of capital (Gross Operating Surplus) was 44% (the solid black lines in Figures 1a and 1b). Labour’s share subsequently declined to 48% in 2008, before improving to 52%. Figure 2 further demonstrates this pattern, showing the real percentage change in GVA, as well as the real percentage change in the Rand amounts out of GVA allocated to labour and capital. It shows that prior to 2008 and with the exception of the recessionary period in 1998 and the near-recession in 2003, the real percentage increase in the Rand amount out of GVA allocated to capital exceeded that of labour. This has turned around since 2008, i.e. after the onset of the international financial crisis. Nevertheless, over the full period the Rand amount allocated to capital increased at a higher rate than the amount allocated to labour.

**Figure 1 – Share of Gross Operating Surplus in GVA**
Because of the rather volatile seasonal nature of the agricultural sector and because the wage and productivity data used below exclude it, the shares of labour and capital used below exclude the agricultural sector from the GVA, labour and capital shares data. Excluding the agricultural sector yields the broken black lines in Figures 1. In addition, because the profit motive of firms and government differ, and to ascertain whether or not the improved share of labour since 2008 was due to the government spending more on labour, the analysis also excluded general government from the data (also see Figure 3 (left-hand) for the real percentage change in government's GVA, labour remuneration and Gross Operating Surplus). But excluding government does not affect the decreasing trend in labour’s share prior to 2008 or the slightly improving trend after 2008.

However, the picture of a decreasing trend before and an increasing trend after 2008 changes when considering the implications of the data in Figure 3 (right-hand). Figure 3 (right-hand) shows the real percentage increase in GVA and the Rand amounts allocated to labour and capital in the manufacturing sector. It would be no understatement to say that the manufacturing sector has been imploding, particularly since the advent of the 2008 recession. As Figures 4 indicates, South Africa has been deindustrialising since the mid-’90s, but the speed at which it does so increased significantly since 2003. The real percentage change in the manufacturing sector’s Gross Value Added (GVA) added to the economy turned negative since 2008, while the share of manufacturing in the total GVA of the economy shrunk from 21% in 1994 to 11% in 2013. None of the other sectors in the economy display such deterioration. The South African manufacturing sector is not unique in this instance, with Dani Rodrik (2013) noting that several emerging market economies (including China) suffer from what he terms premature industrialisation.
The fall in the manufacturing sector’s GVA affected its profitability significantly. The Gross Operating Surplus of the manufacturing sector in Figure 3 (right-hand) shows that the profitability of the manufacturing sector has been deteriorating since 2000. Indeed, the Rand amount of GVA allocated to the manufacturing sector’s Gross Operating Value has been shrinking in real terms by between 10% and 23% per annum since 2008. Yet, the real percentage change in the Rand amount allocated to labour in the manufacturing sector remained positive on average, meaning that in real terms those still employed in the manufacturing sector are better off and labour’s share in the manufacturing sector’s GVA increased. However, labour’s share is an improving share in a shrinking sector.

Figure 1 presents the shares of labour and capital once the ailing manufacturing sector is subtracted from the GVA figures (the broken grey line excludes manufacturing and agriculture, while the solid grey line excludes manufacturing, agriculture and government). When that is done, the improved labour share in GVA since 2008 disappears and labour’s share displays a continuing deterioration over the two decades, while capital’s share displays a concomitant continuing increase. The overall fall in labour’s share raises the question, which sectors contributed to the fall in labour’s share.

Figure 5 shows the real percentage change in the Rand amounts allocated to capital and labour out of the GVA of the various sectors. If the real percentage change in the Rand amount allocated to labour is lower than that of Gross Operating Surplus, then labour’s share in GVA fell relative to that of capital. The significant labour market turmoil in the mining sector since 2012 (the year in which the Marikana incident occurred) can be observed in Figure 5, which shows that since 2012 there has been negative real growth in the Rand amount out of GVA allocated to capital in the mining sector. During that same period there has been a positive growth in the amount out of GVA allocated to labour. A similar pattern emerges for the recessionary periods in 1997 and 2009, as well as 2003 (when the rand appreciated significantly, thereby undermining mining income and profits). In contrast, during the commodity boom years of 2004-8 both the amounts allocated to capital and labour increased significantly in real terms, although the amount allocated to capital increased much more. Thus, during the commodity boom labour did share in the improved earnings resulting from the commodity boom, but certainly not to the same extent as capital. A similar pattern emerges when considering the full two decades, during which on average the amount allocated to capital in the mining sector has grown at almost double the rate compared to that of labour.

Figure 5 shows that in all other sectors, with the exception of the electricity, gas and water sector, as well as in finance, real estate and business services, the amount allocated to capital increased faster than the amount allocated to labour, thereby contributing to a falling share of labour and an increasing share of capital in GVA. Even though it is a corporate sector, electricity, gas and water is dominated by parastatals,
and hence not subject to the same investor pressure to maximise profit as the other sectors. The financial sector includes highly remunerated individuals such as portfolio managers who earn bonuses, hence explaining why this sector is an exception.

Figure 5 – The real percentage increase in GVA and the amounts allocated to labour and capital
Econometric analysis of the relationship between Gross Value Added (GVA), labour compensation and Gross Operating Surplus done for this article, confirm the patterns observed above. The analysis was done for the public and private corporate sectors, thus excluding agriculture and general government. In addition, the analysis also excludes the manufacturing sector due to its peculiar nature. The period analysed is from the third quarter of 1996 to the fourth quarter of 2013, thus ensuring that the period considered only includes years during which the labour legislation approved in 1995 applied. The analysis shows that a 1% increase in GVA leads to a 1.12% increase in Gross Operating Surplus. In contrast, a 1% increase in GVA leads only to a 0.68% increase in labour compensation. These results confirm the respectively rising and falling shares of capital and labour in GVA.

2. Wages, productivity and capital

Economic theory suggests that if labour’s share in GVA is falling, average labour productivity (calculated as GVA divided by the number of workers) increases faster than real wages. Figure 6 shows data from the South African Reserve Bank, indicating that labour productivity indeed increased faster than both public and private sector wages (all three these series exclude agriculture). Surprisingly, given what is often reported in the press, public sector wages increasing slower than private sector wages. In the eighteen years depicted in Figure 6 labour productivity increased by 66%, real private sector wages by 53% and real public sector wages by 47%.

Figure 6 – Labour productivity and real wages

![Graph showing labour productivity and real wages](image)

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3 The SARB provides both quarterly level and quarterly four-quarter percentage change series for productivity, total, private and public sector wages. The level series provided by the SARB contain several breaks due to the use of different StatsSA labour market surveys. However, the SARB has statistically linked the quarterly four-quarter percentage change series, thereby taking out the breaks. Using the last four quarters of the level series one can then use the quarterly four-quarter percentage change series to reconstruct level series that are break-free. These are the series presented in Figure 6. Figure 6 also rebases the three indices so that they start at 100 in 1996. This allows for a comparison of their rates of increase over time.
Economic theory suggests that technological change that augments the productivity of the physical capital used in the production process can explain a shrinking labour share and why wages increased slower than productivity.

i) Explaining labour’s falling share and wages that increase slower than labour productivity: Capital-augmenting labour-saving technology

There are three types of productivity-enhancing technological progress. These are capital-augmenting, labour-augmenting, and total factor (i.e. labour and capital together) augmenting technological progress (the capital under discussion is physical capital). A further distinction should be made between two types of capital-augmenting technology. The first is capital-augmenting technology in which capital and labour are gross substitutes, while in the case of the second, capital and labour are gross complements. If capital and labour are gross substitutes the augmentation of capital’s productivity through technological progress leads to companies substituting capital for labour. It subsequently leads to a falling share of labour in GVA. Such technology is therefore capital-augmenting labour-saving technology. If capital and labour were gross complements the augmentation of capital’s productivity through technological improvements will cause the demand for labour to increase faster than the demand for capital. As a result labour’s share in GVA will increase even though it is capital’s productivity that has been enhanced. Given that labour’s share in South Africa has decreased, suggests that South Africa operates with capital-augmenting labour-saving technology.

Furthermore, in the case where capital and labour are gross substitutes and labour’s share falls as a result of capital-augmenting technical progress, average labour productivity will increase faster than wages. The percentage change in average labour productivity can then not be used as a one-for-one indicator to establish with how much real wages should have increased.

iii) The political economy of wages and capital returns – the bargaining power of labour and capital

In addition to the role of technology, changes in labour power can also explain a falling labour share in Gross Value Added. Focusing on the manufacturing sector Rodrik (1999) has argued that because labour has a better bargaining position in democracies compared to authoritarian regimes, wages in democracies are usually up to 50% higher than in non-democracies. As a result labour has a higher share in income. Rodrik (1999:722, 725) also cites evidence from countries showing that during a time of political transition wages grew faster than productivity. This has not been the case in South Africa (see Figure 6 above). Furthermore, Rodrik (1999:725-6) shows that democracies shift income from profits to wages (and vice versa for authoritarian regimes).

Apart from labour productivity three factors, according to Rodrik (1999:727), determine wages. These are labour’s relative bargaining strength (through among other unions), labour’s outside income options (i.e. outside the private market economy in for instance public sector employment and the informal sector, both affecting the lowest wage for which workers are willing to work) and capital’s outside income options (i.e. investing in another country). Political participation and political competition strengthen labour’s bargaining position and therefore explain why income is shifted from capital to labour.

However, as Rodrik argues, the outside option for the owners of capital also plays a role in the wage level. Should the return on outside options increase, it puts downward pressure on the share allocated to labour. Globalisation and the financialisation highlighted by the ILO (2013), with the latter associated with an increase in aggressive returns-oriented investor institutions, points to stronger outside options for capital. If financial investors have better outside income options (i.e. they can take their money offshore to earn higher rates of return), the required rate of return on capital increases. The higher rate of return that shareholders require, or what is the same thing, a lower saving rate at any given rate of return, will
result in a reduced capital/output ratio, and put pressure on firms to deliver those higher returns. Caustion then runs from a higher required rate of return to a changing capital/output ratio, and on to capital-augmenting labour-saving technological changes and a fall in labour's share. As such, movements in the capital/output ratio and labour's share will be positively correlated (i.e. if the one increases, so does the other), with a decrease in both reflecting increased investor pressure for higher returns. As Figure 7 shows, the capital/output ratio and labour’s share in South Africa indeed are positively correlated.

Figure 7 – Labour share and the capital/output ratio

Empirical analysis for the period 1980-2013 shows that there is a positive relationship between labour’s share and the capital/output ratio. More specifically, a 1% fall (increase) in the capital/output ratio leads to a 0.215% fall (increase) in labour’s share. With the direction of causation running from investor pressure for higher returns to a reduction in labour’s share, changes in labour’s share will adjust to changes in the capital/output ratio (itself the result of pressure for higher returns) and not vice versa. This indeed is what is found in South Africa. The empirical analysis shows that causality runs from the capital/output ratio to labour’s share. This suggests that it is a higher required rate of return of financial investors that, via a lower capital/output ratio, puts pressure on firms to implement the capital-augmenting labour-saving technology.

With the capital/output ratio acting as a proxy for the pressure to improve returns and the role of capital-augmenting labour-saving technology, it is possible to explore specifically the impact of capital-augmenting labour-saving technology on wages. Figures 8 shows how the contribution of the capital/output ratio, in addition to labour productivity, shrunk until 2008, where after it stabilised. This effect was particularly pronounced in the private sector, as one would expect, given that it is the private sector that primarily experiences pressure to improve returns.
Figure 8 – Decomposition of the contribution of productivity and the capital/output ratio to the private real wage (left-hand) and public real wage (right-hand) - % of total

Figure 9 – The real private and public wages if the capital/output ratio remained constant

Figure 9 subsequently shows what the real private and public sector wages would have been had the capital/output ratio remained constant at its value at the start of 1997. It shows that with a constant capital/output ratio both private and public sector wages would have increased more or less in line with productivity. The empirical evidence therefore supports the notion that the increasing use of capital-augmenting labour-saving technology contributed to the reduction of labour’s bargaining power.

3. Conclusion – policy implications

At 52% the percentage share that labour receives out of income in 2013 is significantly lower than in 1994, when it stood at 56%. Although labour’s share improved since its low of 48% in 2008, the improvement results from the profitability crisis in the manufacturing sector and not an improvement in labour’s overall position. Indeed, when the manufacturing sector is excluded from the analysis, labour’s share displays a continuous decreasing trend in the two decades since 1994, decreasing from 57% to 49%.

The analysis shows that for every 1% increase in the real amount of GVA, real Gross Operating Surplus improves by 1.12%, while the real amount of labour remuneration out of GVA only improves by 0.68%.
Economic theory suggests that the increasing use of capital-augmenting labour-saving technology caused labour’s share to decrease. In addition, in the two decades since 1994 the percentage increase in productivity outstripped the percentage increase in both private and public sector wages. More specifically, over the period 1996-2013 productivity increased 66%, while real private and public sector wages increased 53% and 47%.

The analysis suggests that the bargaining power of labour decreased significantly over the two decades since 1994. The increased use of labour-saving technology and higher levels of globalisation and financialisation (the financial sector is the largest sector in the South African economy) all contribute to a weakening of labour’s bargaining power since 1994. The declining labour power thus contributed to a lower share of labour in GVA.

Because capital income is more concentrated than labour income, a falling labour share contributes to a deteriorating income distribution. Hence, from a policy point the question would be whether the decrease in labour’s share can be arrested without undermining economic growth, and if so, how can it be arrested. Merely passing legislation that redistributes income from capital to labour might arrest the falling trend, but if designed and implemented without care, can also undermine economic growth. Nevertheless, recent studies published by the IMF (Ostry, Berg and Tsangarides 2014) and others (e.g. Trubek, Coutinho, and Schapiro (2013) for a study on Brazil, and Bernard and Boucher (2007) comparing a number of OECD countries with various welfare and distribution systems), indicate that measures such as minimum wages, welfare benefits that encourage human capital creation, and more progressive income taxes do not necessarily undermine economic growth. Thus, these measures deserve attention as possible candidates to arrest the falling labour share.

Economists such as Laura Tyson (2014) also argue that stagnating wages (which is linked to a falling labour share) contribute to stagnant aggregate demand and hence secular stagnation. To counter the stagnation Tyson (2014) recommends that workers share in corporate profits. Tyson (2014) cites studies by Blinder, as well as Kruse, Freeman and Blasi who found a positive correlation between profit sharing and productivity.

Furthermore, the discussion above argues that when under pressure to improve profitability, firms may prefer to implement capital-augmenting labour-saving technology, with capital and labour being gross substitutes to ensure that capital captures a larger share of income. For labour’s share not to decrease means that when implementing capital-augmenting labour saving technology, capital and labour need to be gross complements, not substitutes. Alternatively, firms need to implement labour-augmenting technology. Therefore, to arrest the decline in labour’s share might require improvements and changes in labour’s skill levels, resulting in labour possessing the types of skills that complement capital, and thereby causing labour and capital to become gross complements instead of gross substitutes. For instance, what are needed are the types of labour skills that complement the increasing use of IT and related technology. Even if firms then implement capital-augmenting technology, it will not be labour-saving technology.

Lastly, as the ILO (2013) shows, with the advent of large aggressive and global returns-oriented investment institutions that focus on short-term (quarterly) profits, firms face more pressure to produce higher profits. Probably the most difficult question to resolve from an ideological point of view is the question about what constitutes a socially fair rate of return on capital that nevertheless compensates owners of capital for the risk that they bear. Likewise the question remains as to what constitutes fair remuneration for work. What complicates these questions is that finding and implementing their answers

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4 An example of capital and labour being gross substitutes, are automatic teller machines (ATMs) that replaced human bank tellers. Similar examples can be found in IT-driven inventory and distribution systems that cut physical shop fronts and replaced human stock pickers and packers with fully automated and digitised warehousing.
is not just an intellectual exercise, but, as Rodrik (1999) showed, is tied up with existing national and global institutional setups that define the bargaining power of both labour and capital. A resolution would depend on a broader public debate and indeed, a (sufficient) public consensus on the contents of society’s social contract – at present that contract seems incomplete. But whether the national and global institutional setup will allow for the completion of the social contract, remains to be seen.

References


