

# Macroeconomic Determinants of South Africa's Post-Apartheid Income Distribution

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South Africa's distributive regime is striking to all who observe it. This paper situates developments in post-apartheid income distribution within key macroeconomic developments and debates, arguing that deterioration in the wage share between 2000 and 2008 is better explained by factors associated with the commodity boom, rather than those associated with neoliberalism, such as austere fiscal policy, trade openness, or 'financialization.' The distribution of market income has undergone developments at the sector level post-apartheid that have received little attention, reflected in the absence of research identifying commodity price swings as plausible factors influencing income distribution. While the aggregate wage share remains close to its initial level at the start of democracy, the wage share in mining is 12 percentage points lower than at the beginning of 1993, after recovering partially from a nearly 20 percentage point decline over the commodity boom period. The ratio of consumer prices to sector level producer prices is the 'wedge' between real consumption and real product wage rates and in theory a key relative price determining distributive outcomes. In sectors like mining, where real product and real consumption wage rates may depart in significant part, workers may not easily observe the real product wage and nominal productivity shocks may weakly carry through to wages. Other sectors have different dynamics. This paper reviews existing debates about macroeconomic policy and performance, reflecting on how they relate to the evolving wage share before considering evidence from autoregressive distributed-lag and error correction models. This study contributes to discussion over the puzzling growth of inequality in South Africa's democratic era by showing that commodity price swings determined in international markets are a plausible determinant of South Africa's post-apartheid income distribution. This finding is of relevance to both policy and popular debate about the country's stalled development.

Keywords: South Africa; post-apartheid; inequality; development; mining; commodity boom.

JEL codes: E01; E25; E31; O11; O14; O55.

## 1. *Introduction*

A central but surprising feature of the post-apartheid political economy of South Africa (SA) is the decline of the wage share soon after the transition from apartheid. How could a falling wage share accompany the extension of democratic franchise and a political settlement in which trade unions became an important political constituency within the governing alliance? Critical perspectives on post-apartheid economic policy have emphasized the exclusion of organized labor, the Left and heterodox economists from the design of economic policy. However, allegations of neoliberal policies are hard to square with the significant expansion in post-apartheid social policy,

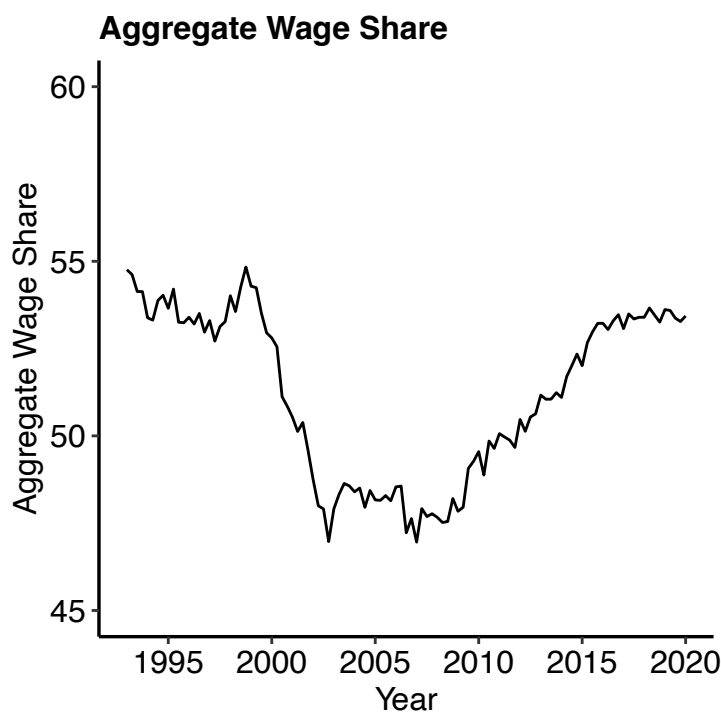
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growing wage rates (and the wage share) in the state-run utilities, and the general growth of government consumption as a share of national output.

I consider an alternative explanation for the falling wage share: booming commodity prices set in international markets raised revenue and profits but not wage compensation in select sectors. I provide graphical evidence and use error correction models, autoregressive distributed-lag models, and cointegration tests to assess competing hypotheses.

Figure 1.



The aggregate wage share in the democratic era, after seasonal adjustment, in %. Author's calculation. Data from Statistics South Africa.

As Figure 1 shows, the aggregate wage share fell considerably in the period around the year 2000 from a level of around 55% to lows of 47%, where it hovered until the Great Recession of 2008. After the Great Recession, the wage share returned to its dawn-of-democracy level. Both sides of these upward and downward trends are mirrored in two sectors of interest (mining and

manufacturing, Figures 3 and 4), with a considerable collapse in the mining wage share from 55% pre-2000 to 35% at the time of the Great Recession and a notable appreciation of the manufacturing wage share from 50% in the aftermath of 2008 to stabilizing at around 63% after 2012.<sup>1</sup> The decline of the wage share is pronounced in the mining sector during the commodity boom. The same is true for manufacturing, but the striking fact of functional income distribution in manufacturing is the dramatic rise of the wage share after the Great Recession. Other sectors have distinct characteristics.<sup>2</sup>

The remaining sections of this paper are as follows: section 2 sets out stylized facts and questions of interest in relation to key debates, section 3 considers theoretical issues outlined in the Keynesian tradition, section 4 the data, section 5 the econometric strategy, section 6 econometric results. Section 7 concludes.

## *2. Hypotheses and stylized facts*

This section outlines a series of channels by which the functional distribution of income in SA may have evolved over time, the existing literature on those channels, and corresponding descriptive empirics.

### *2.1. The democracy puzzle*

Between the end of apartheid and the Great Recession, the SA wage share declined steadily (see Figure 1). From a political-economy perspective, this is a puzzle.<sup>3</sup> The apartheid regime actively repressed the majority of the country's workers. In contrast, in the democratic era the Congress of South African Trade Unions (COSATU) has been an important political actor in a dominant tripartite alliance including the South African Communist Party (SACP) and the ruling African National Congress (ANC). Deteriorating distributive outcomes are worrying in a country

plagued by levels of personal income inequality amongst the highest in recorded history (Piketty 2020, 555).<sup>4</sup>

Downward pressure on the country's wage-share seems to particularly characterize an important part of the first decade of the 2000s. Understanding what has driven these outcomes is relevant both to the socially harmful effects of inequality in SA as well as debates over macroeconomic performance and policy. It would be tempting to treat observations of SA's falling wage-share as the result of a neoliberal turn driven by orthodox macroeconomic policies, particularly in a context where advocacy for 'growth through redistribution' has been central to critical perspectives within the tripartite alliance at least since the transition period.<sup>5</sup> While the track record of post-apartheid macroeconomic policies in SA speaks for itself – exceptionally high rates of open unemployment, unfavorable shifts in sectoral structure in line with premature deindustrialization, and in recent years falling per capita income levels – it may be inaccurate to identify the movement of the wage share as reflective of structural shifts in the strength of labor or in ideology concerning the role of the state. This is most evident in the democratic state's allocation of resources to social policy and developments in public sector remuneration.

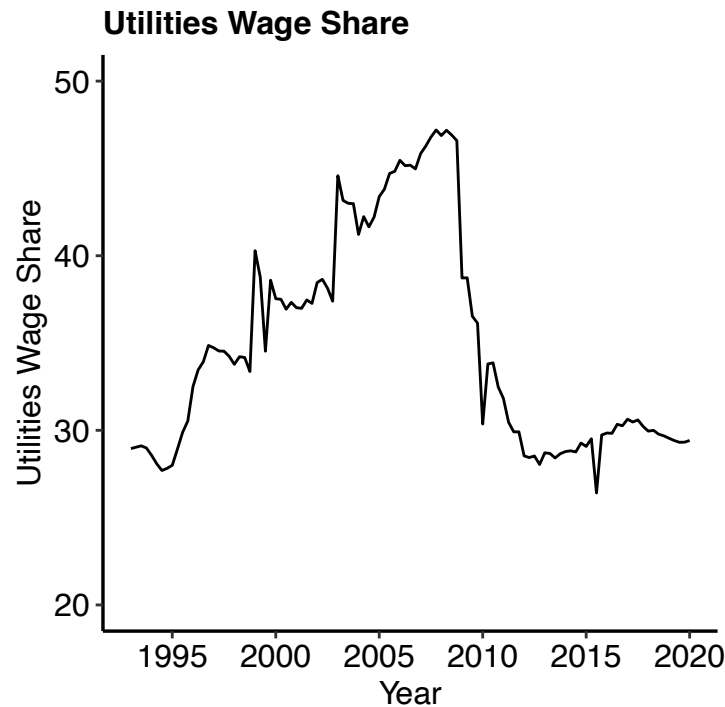
One measure of the democratic dividend is the share of government consumption in GDP. Considering the apartheid regime grossly restricted provision of quality social services to the black majority one would have expected a democratic regime to increase government consumption, and this variable measured as a share of GDP has indeed generally trended upward since democracy.<sup>6</sup> A higher share of government consumption in output might be expected to raise the wage share if it raises workers' fallback positions and the reservation wage. If the wage-share was falling primarily because of welfare state retrenchment, we might expect to see similar sectoral wage-share trends and falling government consumption. This is not reflected in the data<sup>7</sup> and more

generally the considerable effect of fiscal policy on reducing personal inequality in SA is well established in the literature.<sup>8</sup>

One complicating factor with analyzing the effects of the government consumption share on the wage share concerns the endogeneity of government consumption, a policy variable, to the state of the goods market – automatic stabilizers and policies with explicit Keynesian motivations would be expected as a feature of downturns where profits fall, and the wage share consequently rises. Indeed, Gouzoulis *et al.* (2021), a study of determinants of the *private sector* wage share in SA using annual data for 1971-2019 and a similar econometric methodology to this paper, hypothesize and find that public consumption is negatively correlated with the private wage share. However, these authors confusingly characterize expanded public welfare state coverage as consistent with fiscal austerity and the motivation for their hypothesis is unclear.<sup>9</sup>

More generally, the public sector, as seen in utilities, has unique and intriguing distributive trends. In the fifteen years after democracy, the utilities wage share grew considerably from around 30% to nearly 50%. The growth of public sector wages and employment have generally been associated with low quality investment in infrastructure and as a result severe energy shortage over much of the last decade. With prices in this sector administered, managers of the utilities attempted to rationalize operations by considerably raising energy and water prices (hence the dramatic decline in the wage share in this sector after the Great Recession). A look at this sector would suggest that where the ANC has had more influence, as in the public sector, it *has* influenced outcomes consistent with downward redistribution – just not sustainably nor to the advantage of the economy and society more generally. High energy prices and shortages have likely curtailed prospects for industrial development (manufacturing is energy intensive.)

Figure 2.



The wage share in the utilities sector since democracy, after seasonal adjustment, in %. Author's calculation. Data from Statistics South Africa.

In short, if a falling aggregate wage-share in the democratic era is puzzling given the importance of the labor movement to the ruling political alliance and the expansion of the social wage, it is more puzzling when one considers the expansion in the social wage<sup>10</sup> and the growth of public sector wages.<sup>11</sup>

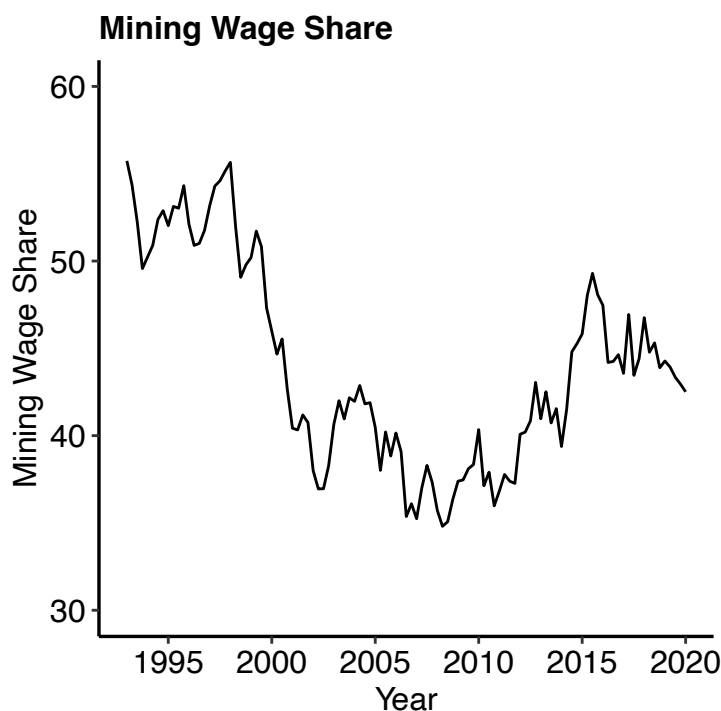
It is less puzzling when considering accounts of the insulation of economic policy from union influence (Marais 2011, 105). The sidelining of trade unions and the Left from influencing macroeconomic policy would be a central feature to the political antagonisms that emerged from the 1996 Washington Consensus-style macro-program, 'Growth, Employment and Redistribution' (GEAR).<sup>12</sup> GEAR pursued reducing government deficits, liberalizing the capital account and

dramatically slashed trade protections. It also targeted in name, if not in practice, keeping the exchange rate stable and competitive, wage restraint and partial privatizations.

## 2.2. *The role of mining*

Piketty's (2014) blockbuster opened with a discussion of the 2012 massacre of 34 mineworkers in Marikana near Johannesburg. To many, the massacre reflected the enduring significance of class conflict in this sector to the country's political and economic history. Mining capital have been a powerful constituency throughout SA's modern history – going back to the 19<sup>th</sup> century, they were an influential interest group in the failed Jameson Raid<sup>13</sup> and numerous accounts have put them at the center of the negotiations to end apartheid.<sup>14</sup> The mining sector remains an important driver of macroeconomic outcomes in SA. Interest in mining's role in aggregate distributive outcomes is motivated by the striking evolution of the mining wage share post-apartheid (Figure 3):

Figure 3.



The wage share in the mining sector since democracy, after seasonal adjustment, in %. Author's calculation. Data from Statistics South Africa.

The evidence for class conflict over realizing targeted output shares in sectors like mining is less clear than one might expect. Profit windfalls from upswings in the commodity cycle have historically been discussed as a plausible channel for evolving distributive outcomes in SA. Discussing the Gold Standard era, Eichengreen (2021) notes fears in SA of negative effects of increasing gold prices on real wages.<sup>15</sup>

A weak response of money wages to commodity cycle upturns brings up the question of labor market institutions and their role in influencing distributive outcomes. Are unions able to win gains for members when mining profits are surging for exogenous reasons? The 1970s in SA was a period that corresponded to a significant growth in trade union representation for many black South Africans. Alongside these developments was the United States' abandonment of the Gold Standard, which oversaw an almost twenty-fold increase in the price of gold between 1970 and 1980 (Wilse-Samson 2013). Aggregate data for this period<sup>16</sup> suggests that the wage share hit a peak *prior* to the militancy that would come to characterize important moments of the 1970s and 1980s, falling from a peak of 58.9% in quarter 1 of 1972 to a trough of 47.5% in quarter 1 of 1980. This would generally fit with an observation that organized labor in the mining sector has not had an interest in, or power over, maintaining a fixed proportion between nominal wages and sector-level prices over the commodity cycle. Figure 7 shows the sharp fall in the SA's aggregate wage share as the international gold price doubled at the end of 1979, followed by rapid bounce back as gold prices halved and returned their mid-1979 level by mid-1982. Consequently, commodity cycle upturns may be plausible drivers of deteriorating distributive outcomes at the sector and aggregate level.



Visual inspection of mining wage share figure raises the question of contemporary union strategy. The upturn in the mining wage share correlates with industrial action in the mining sector and the end of the commodity boom – Sil and Samuelson (2018) argue that attempts to cut the wage bill in several firms after the end of the commodity boom triggered the wildcat strikes in 2012 in the lead up to the Marikana massacre. In an applied sense, this raises the question of worker agency over and interest in the distribution of income in a sector like mining.<sup>17</sup> The 2012-2014 platinum belt strike wave was exceptional because it contested not only capitalist power and state power, but also trade union bureaucracy<sup>18</sup> – a formidable set of structural obstacles. Most interestingly for the topic of this paper, this strike wave happened *after* the commodity boom, in a period where mining producer prices failed to keep up with consumer prices.

Outside of the mining sector, commodity booms can shape distributive outcomes through several channels. The implications for the distribution of income in the manufacturing sector are of special interest, given the sector's importance to national development. The distribution of income in the manufacturing sector is likely to be influenced considerably by demand conditions, with gross profits bolstered when demand is high and vice versa. Commodity booms might drive forward demand for manufactures in contexts with strong linkages between mining and manufacturing. However, commodity booms are associated with 'Dutch Disease'<sup>19</sup> and declining export competitiveness, making the relationship between demand conditions and commodity booms ambiguous for manufacturing.

Figure 4.



The manufacturing wage share since democracy, after seasonal adjustment, in %. Author's calculation. Data from Statistics South Africa.

### *2.3. Relative price movements*

The preceding claims about windfalls from upturns in commodity prices underline the importance of looking at relative prices at the sector level. Prior accounts of SA's aggregate and sectoral performance, as in Rodrik (2008), have likewise emphasized the importance of relative price movements to explain outcomes like premature deindustrialization. The relationship between consumer prices (CPI) and producer prices (PPI) can be informative about distributive dynamics, if, at the sector/firm level, workers' notions of fairness are overwhelmingly influenced by maintaining targets for consumption standards and capitalists are predominantly concerned with how costs correspond to the price of their own output. The relationship between these two sets of

prices is important because it determines the relationship between real consumption wages and real product wages, plausibly related to the mark-up.

In this paper, the ‘wedge’ ( $\omega$ ) refers to the ratio of the real product wage in a given sector to the real consumption wage of that same sector— this reduces to a relative price, as follows from equations 1-3.<sup>20</sup> Subscripts  $i$  represent the sector,  $t$  represents the year and quarter,  $W$  gives the gross nominal wage bill,  $L$  the number of workers employed,  $w^c$  gives the real *consumption* wage rate,  $w^p$  the real *product* wage rate,  $CPI$  gives the economy-wide consumer price index,  $PPI_{it}$  meanwhile gives the sector-specific producer price index:

$$w_{it}^c = \frac{W_{it} * 100}{L_{it} * CPI_t} \quad (1)$$

$$w_{it}^p = \frac{W_{it} * 100}{L_{it} * PPI_{it}} \quad (2)$$

$$\omega_{it} = \frac{w_{it}^p}{w_{it}^c} = \frac{CPI_t}{PPI_{it}} \quad (3)$$

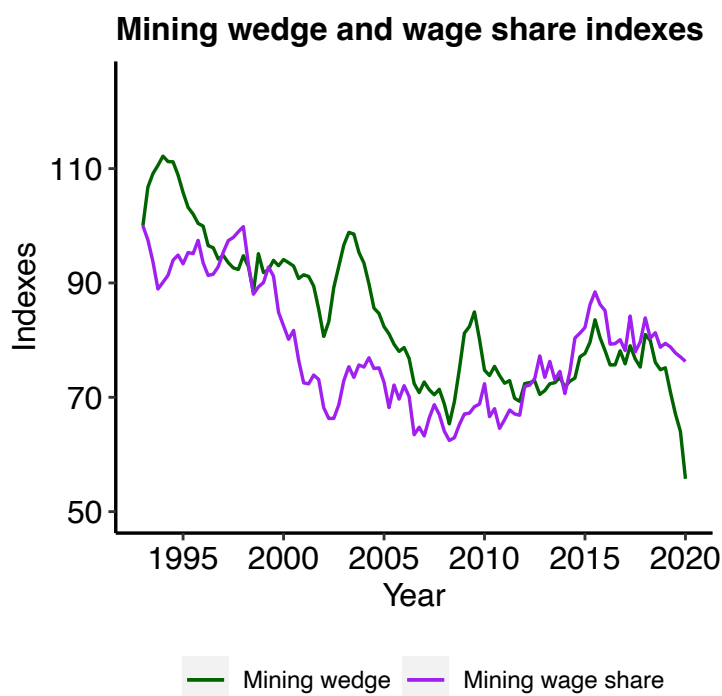
Money illusion and relative wage norms are also plausible determinants of worker bargaining decisions but are not the focus here.<sup>21</sup> It is hard to identify a strong *a priori* rationale for the most relevant reference group for whom workers benchmark their living standards against. In the South African context, with its historical legacy of spatial segregation, within-group differentials may matter more than broadly defined between-group differentials and might explain greater volatility in capital-labor splits driven by external shocks.<sup>22</sup>

Rodrik (2008) emphasizes the decline in the relative price in accounting for key measures of South African manufacturing’s poor performance. For Rodrik, declining profitability in manufacturing is plausibly related to heightened levels of import competition<sup>23</sup> (since the 1990s) and real exchange rate appreciation. Manufacturing relative prices have, however, generally

moved in a favorable direction since 2000 and cannot be used as an explanation for the profit-squeeze in manufacturing.

The main hypothesis I investigate in this paper concerns whether movements in the wage share are at least partially explained by movements in the relative price of consumer to producer prices in mining, which might be understood as the wedge driving the bargaining positions of capital and labor, respectively. This explanation may be especially relevant in the context of mining goods undoubtedly featuring modestly in typical worker consumption baskets.

Figure 5.



Indexes of the mining wedge and mining wage share. Author's calculation. Data retrieved from the Federal Reserve Economic Database and Statistics South Africa.

Due to the nature of bargaining agreements in SA, which are explicitly indexed against consumer prices rather than producer prices, rent sharing agreements may be in a sense written out of bargaining at the firm or sector level. I expect that where consumer prices grow faster than producer prices at the sector level, workers will attain a higher wage share because they bargain

over the real consumption wage and not the real product wage, and assuming different price trends are not explained by differences in productivity growth.

#### *2.4. Trade*

The implications of trade openness for functional income distribution are, theoretically speaking, ambiguous. Trade openness restricts the pricing power of capitalists through import competition but may also be related to oft-cited concerns of races to the bottom in terms of wages. Erten *et al.* (2019) empirically investigate the effects of trade liberalization on wages in SA, finding no significant effect. Trade openness in this paper is measured as the sum of aggregate exports and imports divided by aggregate output, commonly used to measure globalization and seen as a negative determinant of the wage share. I include it in this study to see how it stacks up against the evidence in SA but have no strong priors on the sign of this variable considering import competition may be associated with adverse demand conditions for South African firms but also may harm labor market conditions for workers.<sup>24</sup> Relatedly, considering limited domestic beneficiation, SA mining output is overwhelmingly for the international market – commodity booms ought to correlate with rising export shares in national output. In the mining sector I expect that a rising export share is negatively correlated with the wage share.

#### *2.5. The ‘reserve army’ and demand conditions*

In the South African context, there is a long history of recognition of managing labor market tightness to regulate the distribution of income, principally prior to and during apartheid.<sup>25</sup> In the modern era, and with an economy with open rates of unemployment often exceeding 30% by broad definition, labor market slack has often been related to discussion of inequality in SA.<sup>26</sup>

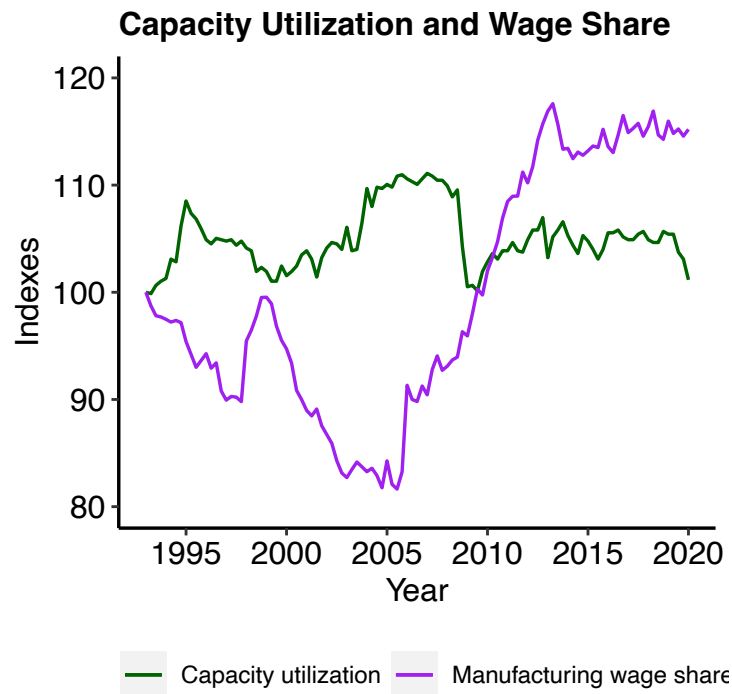
Image 1.



William Kentridge, 'Reserve Army' (1991), reproduced with permission.

The unemployment rate may be cyclically correlated with goods market conditions, which can be observed with capacity utilization measures.<sup>27</sup> Capacity utilization rates in manufacturing have been relatively volatile, with a surge during the commodity boom (Figure 6). Capacity utilization is a measure of (primarily) demand conditions, measured for the manufacturing sector in SA. Changes in rates of capacity utilization are plausibly positively related to changes in mark-ups,<sup>28</sup> suggesting high rates of utilization may inflate gross profits, and hence be negatively related to the wage share in the absence of sufficiently determined worker bargaining institutions targeting a real product wage. In downturns, money wages may be downward rigid and adverse demand conditions measured through low rates of capacity utilization may reduce gross profits and inflate the wage share. Since capacity utilization is influenced by firms over longer time horizons in line with profit-maximizing objectives, it seems plausible that this variable is most significantly associated with distributive outcomes in the short run.

Figure 6.



Indexes of manufacturing capacity utilization and the wage share in manufacturing, after seasonal adjustment. Data from Statistics South Africa.

The wage share is commonly understood as moving counter-cyclically, owing to the procyclicality of profits derived from demand conditions and downward nominal wage rigidity/labor hoarding. In the context of high degrees of labor market slack and correlation between labor and goods market conditions I hypothesize a positive short run association between unemployment and the wage share.

## 2.6 Financialization

The finance, insurance, real estate, and business services value added share has consistently trended upward post-apartheid, in line with what many have dubbed 'financialization.' A large literature has emerged relating financialization to the repressed bargaining power of workers<sup>29</sup>,

and in SA specifically Burger (2015) has discussed it as an explanation for the falling wage share. The growth of business services (outsourcing) as a strategy for weakening worker bargaining power in sectors like manufacturing is discussed in Tregenna (2010).

In summary of this section, several time-varying factors of relevance to post-apartheid income distribution are worth acknowledging in an analysis of the evolving post-apartheid wage share. The relevance of empirical analysis of these factors are the result of a number of ambiguities: 1) government consumption may strengthen the fallback position of workers, but may also stimulate profits by lifting demand conditions; 2) workers may look to eat into increasing mark-ups delivered by sectoral shocks to producer prices, or they may disregard the price of firm/sector output, zeroing in on a target for real consumption; 3) trade openness may squeeze mark-ups via competitive pressures from international firms, but may also stimulate the global race to the bottom in wages; 4) high rates of open unemployment may (weakly) suppress worker bargaining power, but the association between unemployment and the wage share might be confounded by correlation between the unemployment rate and demand conditions, taking into consideration sensitivity of mark-ups to goods market conditions.

A central contention of this paper is that analysis of the sector-level wage share tells a different story from analysis of the aggregate wage share. A falling wage-share in the first 15 years of democracy may not be attributable to factors associated with neoliberalism. It seems plausible that booming commodity prices were a significant factor in the deterioration of the wage share during the 2000-2008.



### 3. Theory

Discussion concerning determinants of functional income distribution has a long history in the political economy tradition, going back to the Classical economists.<sup>30</sup> Various arguments have also been set forward by Kaldor, Kalecki, and Keynes. In these contributions I focus on three broad themes of relevance to this paper: 1) workers' influence over, and interest in, the distribution of income; 2) cyclical variation in the wage share and 3) the role of commodity prices; all of which are relevant to the empirical strategy outlined in following sections. Interest in the 'wedge' as a determinant of functional income distribution is at least partly motivated by whether workers have interest over influencing the functional distribution of income, in and of itself. The wedge in mining is of course much related to the third theme discussed here regarding the role of commodity prices. The role of unemployment and capacity utilization meanwhile are centrally tied to interest in cyclical variation in the wage-share.

The first theme concerns the (in)ability of workers to influence real wages and income distribution in the context of capitalist dominion over price setting. In the *Critique of the Gotha Programme*, Marx denounced the Lassallean 'Iron Law of Wages', contesting the idea that unions are unable to influence real wages and income distribution due to nominal wages causing proportional increases in prices (Marx 1875; see also Baumol 1983).

Keynesian theory, meanwhile, does not offer a unified position on the ability of workers to influence income distribution. Kregel (1978) provides an account of the passive role of workers in determining income distribution in the Keynesian-Kaleckian paradigm. Marglin (1984, 127), meanwhile, criticizes Keynesian characterizations of fixed money wages for "assuming a supine working class." However, Marglin's dynamic equation for the evolution of the real wage assumes a constant balance of class forces and hence the convergence of actual real wages to their

conventional level. Asimakopoulus (1988, 141), in a sense aims to rebut Marglin’s criticism in an account of Keynesian distribution theory that includes Kalecki’s views on how bargaining power can influence the mark-up, in the extraordinary instance of a “spectacular wage rise.” Skott (1989a) criticizes this approach as unconvincing in a closed economy context. A more recent discussion is found in Herr’s (2019) account of Kalecki, which suggests workers’ bargaining power negatively influences the mark-up but that mark-ups also positively influence worker bargaining power, suggesting an ambiguous relationship between bargaining power and the mark-up.<sup>31</sup>

Much of the previously mentioned contributions relate to discussion of mature economies. Dual economies have been characterized by wage-setting featuring the absence of working-class influence over distributive shares.<sup>32</sup> The Lewis (1954) model famously assumed that the rewards of capitalist development accrue exclusively to capitalists until the economy reached ‘the Lewis turning point.’<sup>33</sup>

The second theme concerns the relationship between the business cycle and income distribution<sup>34</sup>, of relevance to attempts to identify the role of demand conditions in the empirical analysis that follows. This theme is addressed in several forms, including in ‘the Kalecki principle’ that capitalists earn what they spend, and workers spend what they earn. To construct a Keynesian theory of income distribution, Kaldor (1956) uses the following identities, where  $Y$  = nominal income,  $W = wL$  = the wage bill (the product of the average wage rate and employment),  $\Pi$  = gross profits,  $I$  = investment,  $S$  = saving,  $S_k$  = the level of capitalist saving,  $s_k$  = the saving rate of capitalists,  $\pi$  = the profit share.

$$Y \equiv W + \Pi \tag{4}$$

$$I \equiv S \tag{5}$$

$$S = S_k = s_k \Pi \tag{6}$$

$$I = s_k \Pi \quad (7)$$

Unlike Kalecki, Kaldor assumes full employment, and the profit share is the accommodating variable if workers do not save; simple manipulation of (7) shows that a higher level of investment corresponds to a higher level of profits, facilitated by price adjustment:

$$\frac{\Pi}{Y} = \pi = \frac{I}{Y} \frac{1}{s_k} \quad (8)$$

Kalecki (1968, 266) explicitly discounts the counter-cyclicalities of the wage share, choosing instead to assume a constant profit share over the business cycle and recognizing the incompatibility of this perspective with the view that the profit share may be “the instrument of securing—through price flexibility in relation to demand—the full utilisation of resources.”

If one introduces saving out of wages,  $s_w$  = the saving rate out of wages (where  $s_w < s_k$ ), the profit share can be written as follows, and the determination of functional income shares becomes slightly less straightforward than the ‘widow’s cruse’:

$$\pi = \frac{I}{Y} \frac{1}{s_k - s_w} - \frac{s_w}{s_k - s_w} \quad (9)$$

Keynes (1936, 17) outlined reasons for his belief in the counter-cyclicalities of the real wage.<sup>35</sup> Swanson (2004) systematically reviews the evidence using data for a significant period of post-war US manufacturing, distinguishing between the real consumption wage and the real product wage. When deflating industry nominal wages by industry prices (rather than an aggregate deflator) one finds clearer evidence of the countercyclicalities of real wages. In keeping with these findings, recent research argues that low wage share firms have this character by virtue of high

revenue labor productivity rather than low wages and that this is best explained by demand factors (Kehrig and Vincent 2021).

While few Keynesian analyses have drawn on both Keynesian precepts of downward nominal wage rigidity and Marxian class conflict frameworks, these tendencies were brought together within a synthetic account in Skott (1989b). There, the profit share is increasing in the rate of capacity utilization, with the level of saving increasing in the profit share, the growth rate of output increasing in profits, and a non-standard investment equals savings equilibrium condition is introduced, characterized by out of equilibrium price adjustment. Class conflict is integrated via the effect of employment rates on the growth rate of output, and not directly on functional income shares. However, ‘Goodwinian’ dynamics may have little relevance to dual economies, where large amounts of open or hidden unemployment prevent workers from exerting strong upward pressure on wages or constrain output expansion of firms.

In summary of short run factors, Keynesian theories of mature economies have outlined income distribution as endogenous to demand conditions and the state of the labor market. However, as mentioned immediately above, the tightness of the labor market, reflected in measures of open unemployment rates, may be less relevant in dual economies where hidden or visible unemployment fulfills a ‘reserve army’ function over the long run. Hence, short-run/cyclical drivers of the wage share include downward-sticky nominal wages, and pro-cyclical producer prices and capitalist expenditures.

A third theme of relevance concerns the role of commodity prices. Keynes (1930) introduced by way of historical account, an illustration of how commodity windfalls, and not diminished consumption/thrift, stimulated the profit share and capital accumulation in Europe

during the 16<sup>th</sup> century<sup>36</sup> through his account of ‘profit inflation.’<sup>37</sup> Kalecki (1938, 108) and Mitra (1954, 24-25) also highlight the profit share as increasing in commodity prices.

The role of commodity prices has thus featured in some accounts of determinants of income, and it is surprising that little attention has been paid to the effects of the 2000s commodity boom on income distribution in this context.<sup>38</sup> An accounting perspective about the relationship between commodity prices and functional income distribution might start with recognition of the following accounting relationship, where  $\sigma_R$  is the wage share (one minus the profit share,  $\pi_R$ ) in the resource sector,  $p_R, w_R, \omega_R, L_R, Y_R$  gives the sector’s price level, nominal wage rate, ‘wedge’, employment level and output level, respectively:

$$\sigma_R = 1 - \pi_R = \frac{w_R L_R}{p_R Y_R} = \left( \frac{w_R}{CPI} \right) \left( \frac{CPI}{p_R} \right) \left( \frac{L_R}{Y_R} \right) = \frac{w_R^c \omega_R L_R}{Y_R} \quad (10a)$$

Following from equation 10a, where workers’ wage bargaining position is driven primarily by efforts to preserve the real purchasing power of wages, upward pressure on mining producer prices is definitionally related to the mining wage share.

Influenced by much of the literature cited in preceding paragraphs, the following analysis is guided by the following propositions: 1) sectoral disaggregation is important considering wide variation in the economic conditions facing different sectors, 2) wages respond weakly to profit inflations driven by external economic conditions in sectors where workers do not consume the product and in the context of large reservoirs of surplus labor and 3) gross profits, especially in the non-extractive tradable sector, are relatively sensitive<sup>39</sup> to the business cycle<sup>40</sup>, at an extent that nominal wages and the wage bill are not.

#### *4. Data*

The key outcome variables of interest in this study are sectoral wage-shares, calculated from Statistics South Africa data.<sup>41</sup> To calculate the wage share, I divide through remuneration of employees by value added for each sector and in aggregate. An index of domestic mining and quarrying producer prices is retrieved from the Federal Reserve Economic Data (FRED) database. Domestic manufacturing producer prices have likewise been retrieved from FRED. Data for the unemployment rate is obtained from the South African Reserve Bank (SARB) from 1994 to 2020. Sectoral employment series are likewise obtained from the SARB. Data on trade openness (exports plus imports, normalized by GDP is often used in the literature<sup>42</sup>) is calculated from data obtained from the SARB. Capacity utilization data for the South African manufacturing sector is obtained from Statistics South Africa. All data is at the quarterly frequency.

Table 1.

Summary Statistics					
Statistic	N	Mean	St. Dev.	Min	Max
Mining wage share	109	0.439	0.064	0.327	0.591
Manufacturing wage share	109	0.547	0.067	0.425	0.687
Agriculture, forestry, fishing wage share	109	0.336	0.113	0.171	0.640
Utilities wage share	109	0.348	0.078	0.224	0.580
Construction wage share	109	0.512	0.074	0.378	0.732
Wholesale, retail wage share	109	0.447	0.033	0.390	0.531
Transport, storage, communications wage share	109	0.360	0.063	0.282	0.509
FIRE, business services wage share	109	0.383	0.031	0.332	0.442
Government services wage share	109	0.846	0.017	0.806	0.873
Personal services wage share	109	0.649	0.031	0.577	0.695
Official unemployment rate	105	24.344	2.901	16.900	30.100
GDP growth rate	108	0.637	0.625	-1.556	1.858
Export share of GDP	109	28.004	3.556	20.600	36.900
Import share of GDP	109	27.228	4.700	17	40
Real effective exchange rate	109	104.620	14.639	70.070	134.357
Manufacturing capacity utilization	109	81.398	2.224	77.400	86.100
Mining employment	109	488,851.400	57,594.730	401,770	629,657
Manufacturing employment	109	1,432,546.000	165,871.900	1,197,956	1,752,679
Consumer price index	109	67.896	28.179	26.954	124.989
Mining PPI	109	69.337	35.643	20.931	182.624
Manufacturing PPI	109	66.150	30.217	24.108	125.983
Real mining output	109	58,338.600	2,381.299	49,916.700	63,570.700
Manufacturing labor productivity	109	90.421	18.360	54.700	115.100
Government consumption share	109	19.558	1.044	17.400	21.500
FIRE and Business Services VAS	109	0.194	0.025	0.150	0.240

### 5. Econometric strategy

Augmented Dickey-Fuller tests show that we fail to reject the null hypothesis of non-stationarity for all variables.<sup>43</sup> Spurious regression is a well-known concern when attempting to analyze the relationship between non-stationary variables. Due to this danger, I(1) variables will be differenced in line with Error Correction Model (ECM) methodology and the possibility of cointegration between the variables will be analyzed using the bounds test methodology of Pesaran *et al.* (2001). The latter methodology is valid if all variables are I(1), I(0) or a combination of both. If a cointegration relationship exists Autoregressive-Distributed Lag (ARDL) models can be used to analyze the nature of the long-run relationships identified by the bounds test. Under the bounds

testing approach of Pesaran *et al.* (2001) two sets of critical values are given corresponding to two cases assuming either that regressors are either all I(1) or I(0). If the test statistic exceeds the upper bound critical value a long run relationship/association can be inferred and a regression can be estimated in levels, whereas if the test statistic falls below the lower bound critical value, we can infer the absence of a long run relationship. Where the test statistic falls in between upper and lower bounds the test results are indeterminate.

For all regressions, the ‘optimal’ lag structure was chosen according to the Akaike Information Criterion (AIC). Lags of the dependent variable and independent variables up to a maximum order of four quarters were selected for all models. An error correction term is also fitted and included in the output. All models are selected with an unrestricted intercept and unrestricted trend (‘case = 5’, in Pesaran *et al.* (2001)). Newey-West standard errors are employed to account for heteroskedasticity and autocorrelation that commonly characterize time-series analyses.

I run variations on equation 11, where the dependent variable  $\sigma_t$  (or  $1 - \pi_t$ ) corresponds to the wage share in a particular sector (the mining sector, below),  $\Delta\mu$  gives a vector of first differenced variables and  $x$  corresponds to a vector of independent variables subtracted from the dependent variable (in levels). If a cointegration relationship exists then the latter term is I(0) and a long-run relationship can be inferred.

$$\Delta\sigma_t = \alpha_0 + \sum_1^a \beta_a \Delta\sigma_{t-a} + \sum_0^c \delta_c \Delta\mu_{t-b} - \sum_0^b \gamma_b x_{t-c} + \varepsilon_t \quad (11)$$

## 6. Results

Below I present some findings, which suggest that the mining wedge may be a significant determinant of the wage share, particularly in mining in the short run, if inconclusively in the long



run, with F-statistics from the bounds test for regressions analyzing determinants of the mining wage share indicating the absence of a cointegration relationship.

Regressions 1.1 through 1.6 look at associates of the wage share in the mining sector, results are summarized in Table 2 below combining output from ARDL and ECM models.<sup>44</sup> In all regressions a one period upward change in the natural logarithm (henceforth the log) of the mining wedge is positively associated with the log of the mining wage share, at high levels of statistical significance. A percentage point change in the contemporaneous mining wedge is positively associated with a change in the mining wage share of within the range of 0.23 – 0.42 percentage points. In long-run levels, these econometric results suggest the absence of any significant relationship between the mining wedge and the mining wage share. The short run coefficients on the mining wedge may seem small given the following algebraic manipulation of equation 10a, which would suggest the mining wedge should have something more like a proportional relationship to the mining wage share from a simple accounting perspective.  $S_R$  gives revenue,  $\sum F_i p_i$  gives intermediate input cost to the sector.

$$\sigma_R = \frac{w_R L_R}{p_R Y_R} = \left( \frac{w_R}{w_{non-R}} \right) \left( \frac{w_{non-R}}{CPI} \right) \left( \frac{CPI}{p_R} \right) \left( \frac{L_R}{Y_R} \right) = \left( \frac{w_R}{w_{non-R}} \right) \left( \frac{w_{non-R}}{CPI} \right) (\omega_R) \left( \frac{L_R}{S_R} - \frac{p_R L_R}{\sum F_i p_i} \right) \quad (10b)$$

However, complementary mining inputs may experience contemporaneous price increases alongside commodity prices that contract value added in this sector. A more important factor diminishing the elasticity of the wage share to the wedge may be substantial capital flight through means like export misinvoicing. I include the export share as another commodity boom-related variable plausibly influencing distributive outcomes in the sector. The short-run coefficients on this variable show a significant negative association with the mining wage share.

Table 2.

## Regression results: Mining wage share

	Regression 1.1	Regression 1.2	Regression 1.3	Regression 1.4	Regression 1.5	Regression 1.6
Ln(Mining WS).t-1	-0.060 (0.040)	-0.088** (0.040)	-0.112*** (0.041)	-0.113*** (0.041)	-0.198*** (0.064)	-0.083* (0.043)
$\Delta$ Ln(Mining WS).t-1	-0.092 (0.105)	-0.125 (0.094)	-0.151 (0.091)	-0.170* (0.090)	-0.218** (0.102)	-0.143 (0.096)
$\Delta$ Ln(Mining WS).t-2			0.085 (0.090)	0.069 (0.089)		
$\Delta$ Ln(Mining WS).t-3			-0.076 (0.088)	-0.064 (0.087)		
$\Delta$ Ln(Mining WS).t-4			-0.210** (0.087)	-0.217** (0.086)		
Ln(Mining Wedge).t-1	0.091 (0.069)	0.140** (0.060)	0.078 (0.061)	0.023 (0.066)	-0.119 (0.079)	-0.004 (0.061)
$\Delta$ Ln(Mining Wedge).t	0.402*** (0.108)	0.416*** (0.099)	0.401*** (0.095)	0.360*** (0.108)	0.229* (0.116)	0.318*** (0.110)
$\Delta$ Ln(Mining Wedge).t-1	-0.038 (0.130)					
$\Delta$ Ln(Mining Wedge).t-2	0.143 (0.119)					
$\Delta$ Ln(Mining Wedge).t-3	-0.004					

Standard errors reported in brackets.

Lag structure chosen according to the AIC

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

	Regression 1.1	Regression 1.2	Regression 1.3	Regression 1.4	Regression 1.5	Regression 1.6
	(0.121)					
$\Delta \text{Ln}(\text{Mining Wedge}).t-4$	-0.087					
	(0.116)					
$\text{Ln}(\text{Unemployment rate}).t-1$		-0.075*	-0.077**	-0.059	-0.083**	
		(0.040)	(0.038)	(0.040)	(0.040)	
$\Delta \text{Ln}(\text{Unemployment rate}).t$		-0.056	-0.085	-0.070	-0.117	
		(0.080)	(0.078)	(0.077)	(0.079)	
$\text{Ln}(\text{Government Consumption \% GDP}).t-1$			0.346***	0.273**	0.428**	
			(0.115)	(0.120)	(0.184)	
$\Delta \text{Ln}(\text{Government Consumption \% GDP}).t$			0.274	0.243	0.220	
			(0.178)	(0.175)	(0.184)	
$\Delta \text{Ln}(\text{Government Consumption \% GDP}).t-4$					-0.342*	
					(0.193)	
$\text{Ln}(\text{Export \% GDP}).t-1$				-0.089	0.037	-0.113*
				(0.068)	(0.085)	(0.064)
$\Delta \text{Ln}(\text{Export \% GDP}).t$				-0.185**	-0.276***	-0.248***
				(0.078)	(0.082)	(0.076)
$\Delta \text{Ln}(\text{Export \% GDP}).t-1$					-0.285***	-0.082

Standard errors reported in brackets.

Lag structure chosen according to the AIC

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

	Regression 1.1	Regression 1.2	Regression 1.3	Regression 1.4	Regression 1.5	Regression 1.6
					(0.094)	(0.077)
$\Delta \text{Ln}(\text{Export \% GDP}).t-2$					-0.207**	
					(0.085)	
$\Delta \text{Ln}(\text{Export \% GDP}).t-3$					-0.164**	
					(0.079)	
$\Delta \text{Ln}(\text{FIRE \& BS \% GDP}).t$					0.058	
					(0.616)	
trend	0.000	0.001**	0.000	0.000	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Num.Obs.	104	104	104	104	104	107
R2	0.206	0.216	0.334	0.375	0.433	0.271
R2 Adj.	0.130	0.159	0.246	0.277	0.296	0.212
AIC	-391.7	-397.0	-403.9	-406.6	-404.7	-414.7
BIC	-362.6	-373.2	-366.8	-364.2	-346.5	-388.0
Log.Lik.	206.847	207.505	215.932	219.276	224.334	217.354

Standard errors reported in brackets.

Lag structure chosen according to the AIC

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

How should these results be interpreted intuitively? With wage indexation against consumer price inflation, and mining prices set internationally, an increase in the mining wedge is a plausible measure of a shrinking mark-up in the mining sector. With either bureaucratized trade unions or workers aiming for a target level of real consumption, and where output of the firm/sector does not enter the consumption basket, output sharing agreements may be weak. Indeed, this is the story that accords with visual inspection of Figure 3 and the general volatility of the wage share in South Africa historically, Figure 7.

In the mining sector where movements in the aggregate unemployment rate may be less strongly correlated with demand conditions in the sector, we have clearer room for observing associations between the unemployment rate and distributive outcomes. In lagged levels, the log unemployment rate is consistently negatively associated with the log of the mining wage share, however, the bounds test suggests the absence of a cointegration relationship and these long run coefficients should be interpreted cautiously. The long-run coefficient on the government consumption share, meanwhile, is positively associated with the mining wage share. Due to the unique nature of demand for the output of this sector we would indeed expect the wage share to be more visibly positively correlated with government consumption than in other sectors. However, whether the coefficient of interest here reflects state consumption policy bolstering worker bargaining power or merely reflects a strong correlation between mining profit windfalls, which the mining wage share ought to be falling in, and aggregate economic performance, which the government consumption share is falling in (by policy or definition), is unclear.

Diagnostic tests for regressions 1.1-1.6 are provided in Appendix B. Appendix C gives a regression table for factors associated with the manufacturing wage share and the corresponding diagnostic tests. The one period change in the rate of capacity utilization is a robust negative correlate of the manufacturing wage share, in line with expectations outlined in Section 3. The change in the real effective exchange rate is likewise a robust correlate of the manufacturing wage share. However, all regressions 2.1-2.6 explain a limited degree of variation in the manufacturing wage share and the profit-squeeze characterizing manufacturing since the Great Recession is unexplained.<sup>45</sup> An obvious candidate for the profit-squeeze in this sector is the remarkable growth of energy prices and unreliable energy supply post-2008, given the energy intensity of manufacturing.

## *7. Conclusions*

In many ways, the political economy of SA in the democratic era is puzzling. The arrival of democracy in 1994 was met with near euphoric expectations, unsurprising after the end of the prior regime. The ruling ANC populated the state bureaucracy with its own party members, as well as leaders from its alliance partners, the SACP and COSATU. The alliance has benefited from near one-party (ANC) dominance over the electoral system for several decades and many would argue that popular demand for a significantly more radical dispensation is high. Why then has the aggregate wage share never risen above its pre-democracy level and why did it fall so precipitously during the early 2000s? Is this a marker of the stranglehold of neoliberalism on the ruling alliance and country?<sup>46</sup> A glance at the sectoral heterogeneity tell a different story and lends some credence to a story about the commodity boom.

This should not be misunderstood as a defense of post-apartheid macro policy nor the ANC. The track record of both speaks for itself. Post-apartheid policy failures are strongly associated with Washington Consensus-style trade and capital account policies. However, counter-cyclical stabilization policies have been included within the macro policy arsenal. Consequently, it may be misleading to attribute stagnation and inequality to anti-statist ‘Thatcherite’ policies. This conclusion is supported by the reality of rapid growth in public sector wages in sectors like utilities<sup>47</sup> and the considerable expansion of social policy during the democratic era. Recognition of this point underscores the need for progressives to shift the onus of policy critique from inadequate social policy to inadequate growth policy, rather than conflate one another.

To understand why distributive outcomes have deteriorated in SA during an important period of the post-apartheid era this paper takes a closer look at the sectoral variation in distributive outcomes. Descriptive statistics and econometric results presented above are consistent with the

view that the 2000s commodity boom altered relative prices in a direction that allowed mining capital to capture a greater share of output, at least over the short run. However, the results from reduced-form econometric tests should be treated cautiously.

This concern is especially relevant to discussion of ramifications of changes in the government consumption for distribution. Post-apartheid, government consumption has trended upward significantly. The econometric results are supportive of the idea that this development has been associated with a higher wage share. Whether this is driven by cyclical co-movements in the wage share and government consumption share through the role of automatic stabilizers, or rather by the strengthened fallback position of workers is unclear and clean inference for policy is not possible.

With recent talk of a new commodity super-cycle amidst the post-Covid global economic recovery, it may be prudent for the state to identify additional ways of channeling windfall rents into productive economic activity consistent with a long-run development strategy. Windfalls from upturns in the commodity cycle are temporary (by definition) and with SA's manufacturing sector enduring a considerable profit-squeeze it would be desirable to direct windfall revenues to projects with long-term payoffs to growth and structural transformation. A starting premise underlying this suggestion is that the state takes capturing corporate resource rent windfalls seriously – no trivial matter in the presence of weak bureaucratic will<sup>48</sup> or capital flight. A second issue, assuming that the windfall is captured, regards present biases that predispose political actors toward directing resources to projects that are politically hard to cut when the windfall disappears.

If workers captured temporary upturns in commodity prices, and assuming inter-sectoral wage norms were rigid, commodity booms could squeeze manufacturing profits beyond the short run due to downward nominal wage rigidity. But it is no more socially and economically desirable

for capitalists to uniquely accrue this windfall, to be stashed in tax havens or spent on luxuries. In a context where real public infrastructure investment has been falling over the past five years, it may be socially and economically desirable for excessive profit income from an upturn in commodity prices to be appropriated by the state through design of a special commodity-windfall tax and directed at income generating projects via industrial policies or infrastructure investment.

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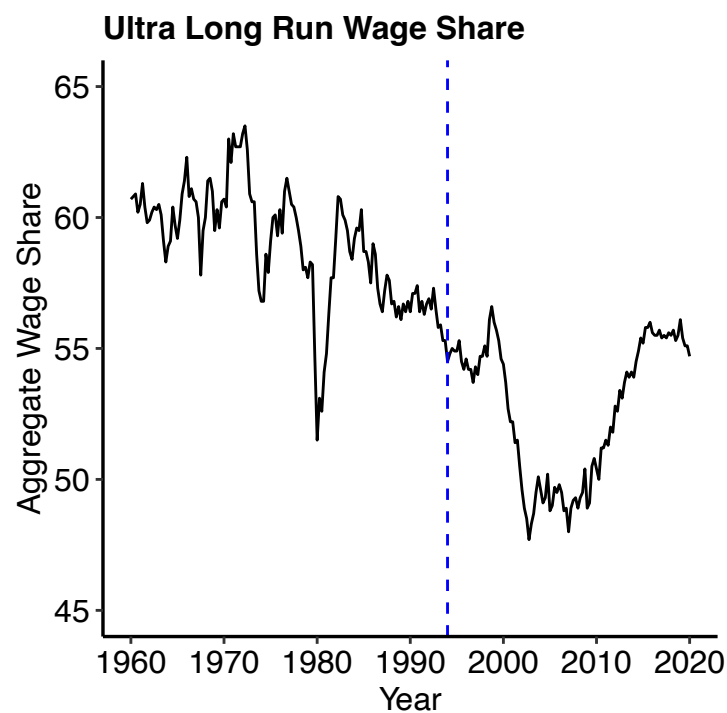
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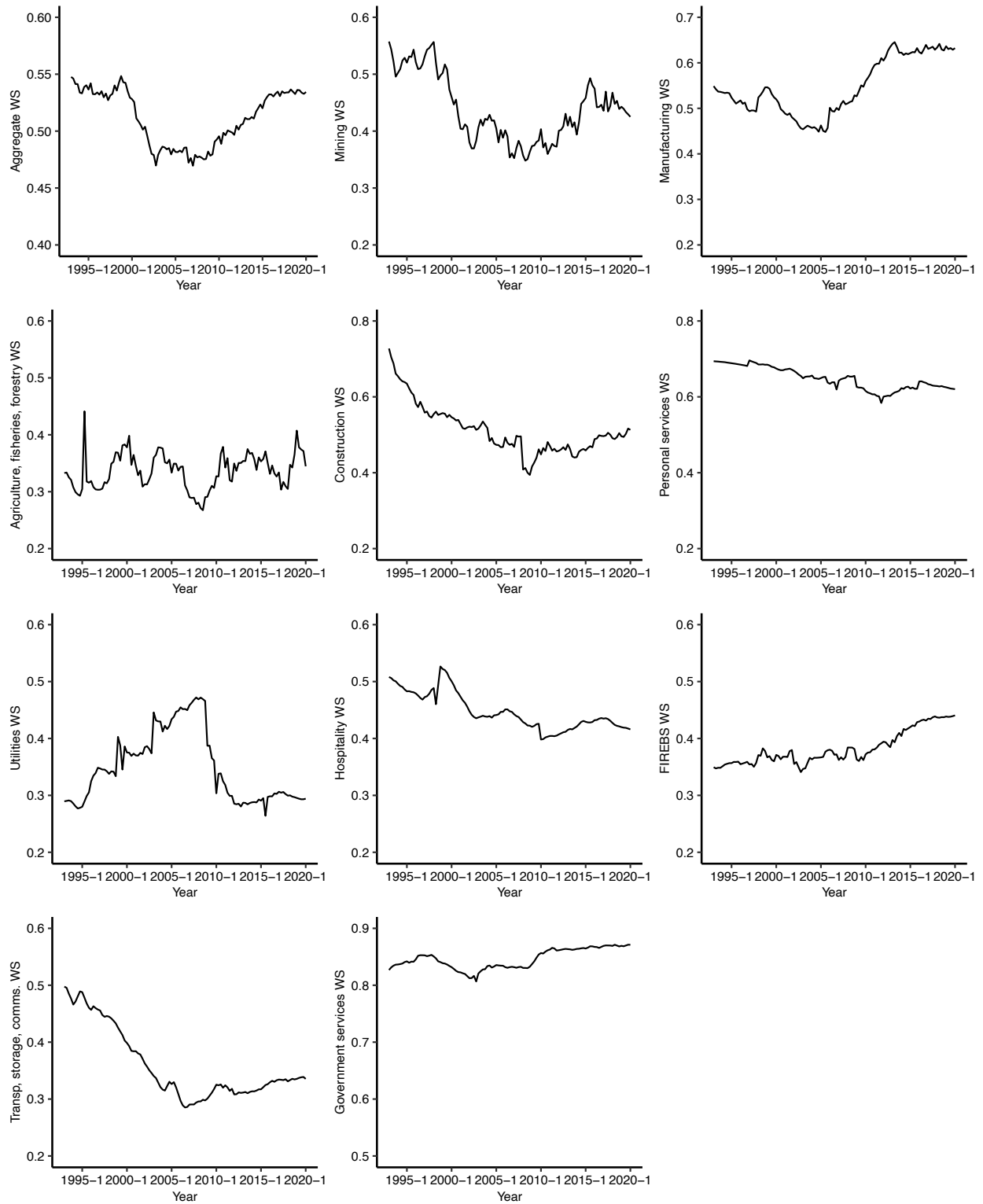
## Appendix A

Figure 7.



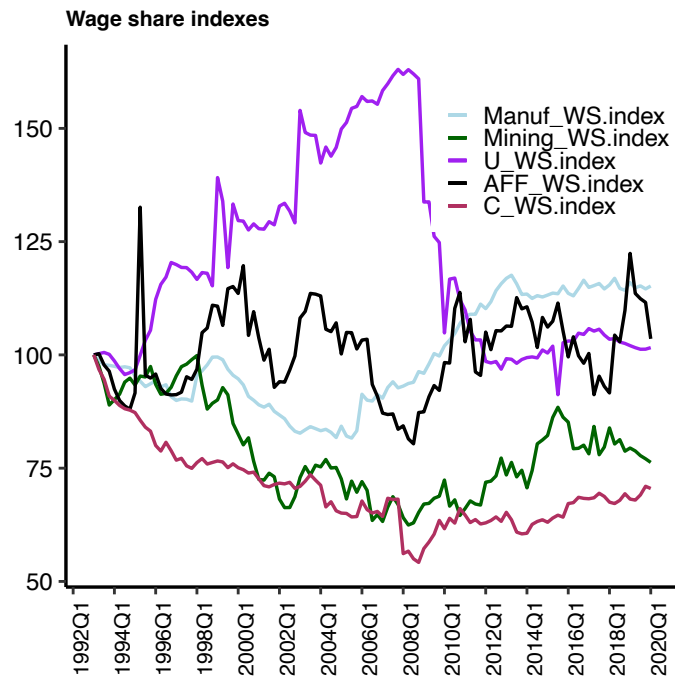
The aggregate wage share since 1960, in %, author's calculation. Dashed line gives transition to democracy. Data from the South African Reserve Bank.

Figure 8.



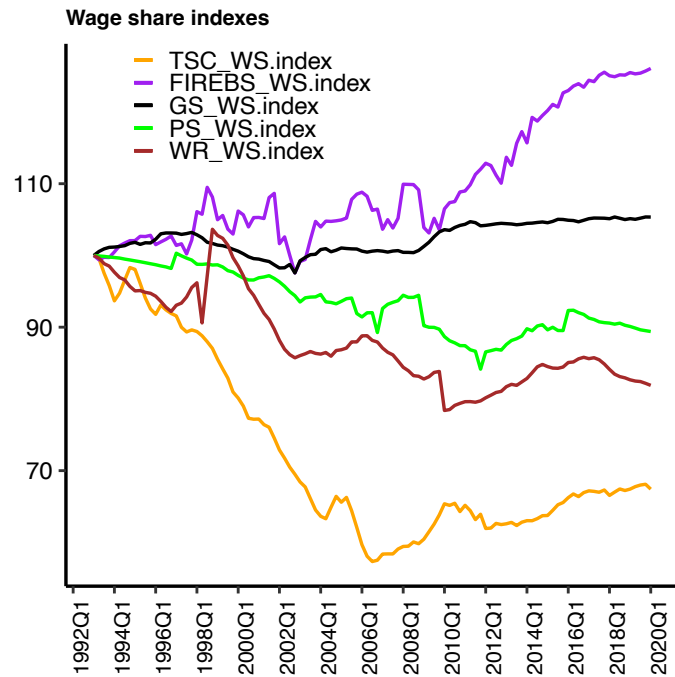
The wage share across ten sectors and in aggregate, after seasonal adjustment. Author's calculation. Data from Statistics South Africa.

Figure 9.



An index of the wage share for manufacturing, mining, utilities, agriculture-forestry-fisheries, and construction, where 1993q1 = 100 and after seasonal adjustment. Author's calculation. Data from Statistics South Africa.

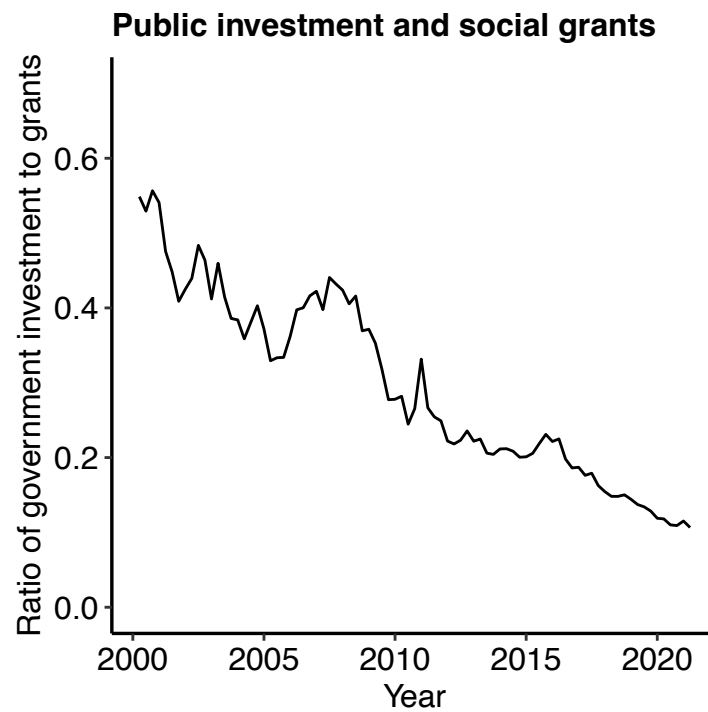
Figure 10.





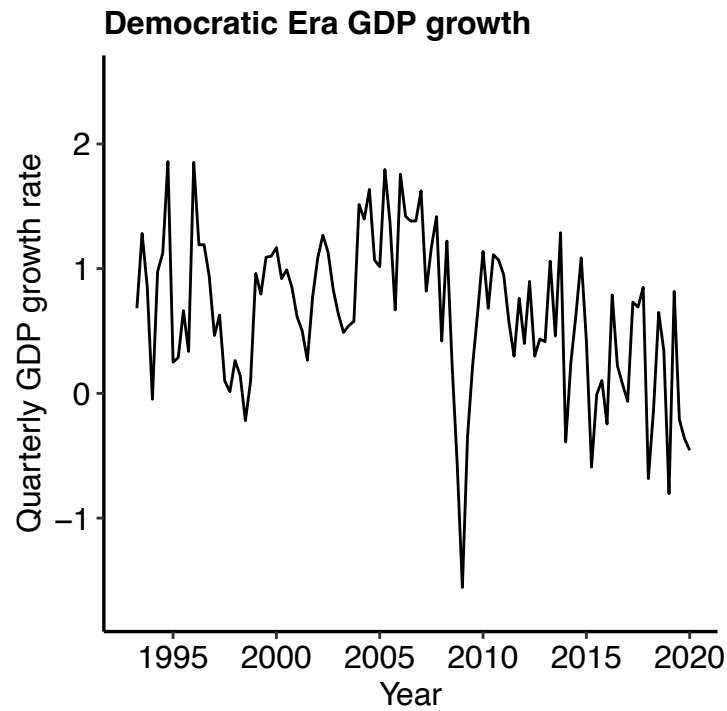
An index of the wage share for transport-storage-communications, FIRE-business services, government services, personal services and wholesale-retail sectors, where 1993q1 = 100 and after seasonal adjustment. Author's calculation. Data from Statistics South Africa.

Figure 11.



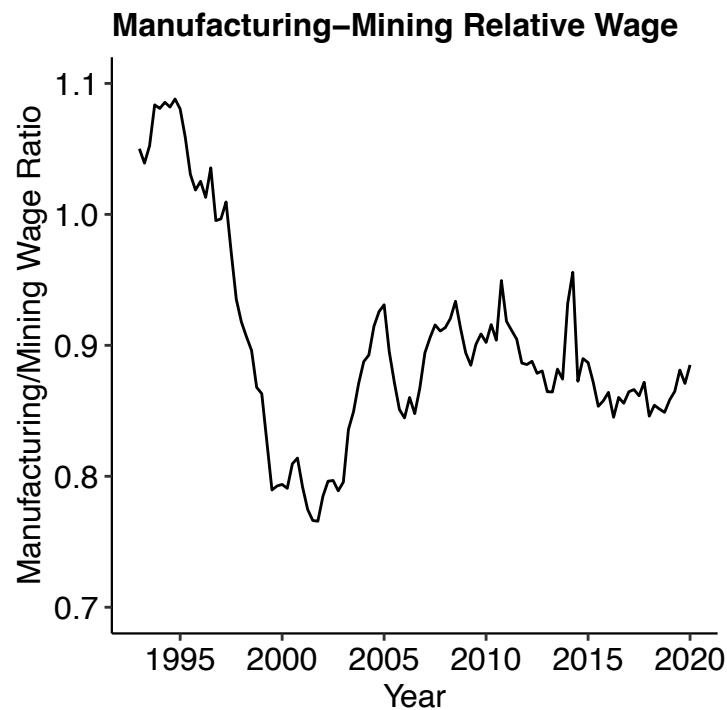
Ratio of public investment to expenditure on social grants by national government, after seasonal adjustment. Author's calculation. Data from the South African Reserve Bank.

Figure 12.



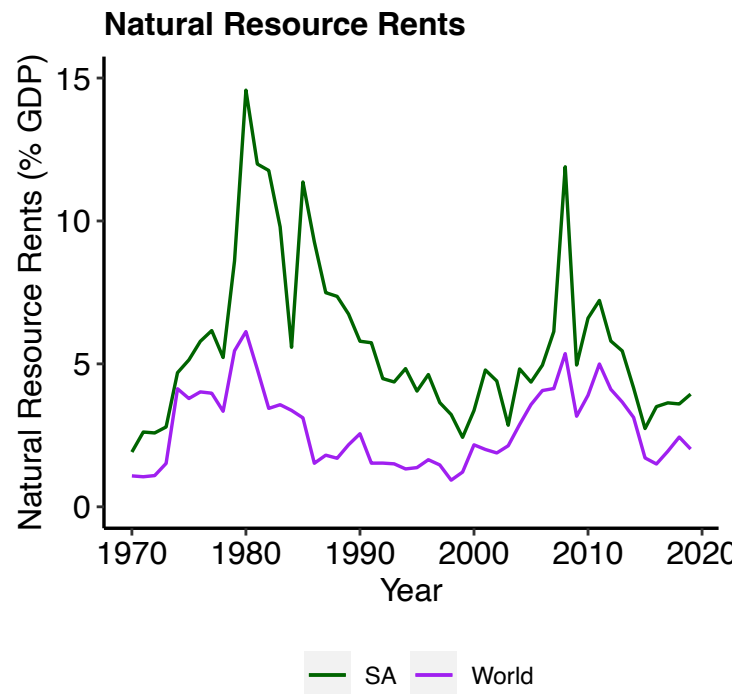
Quarter-on-quarter real GDP growth rate. Author's calculation. Data from Statistics South Africa.

Figure 13.



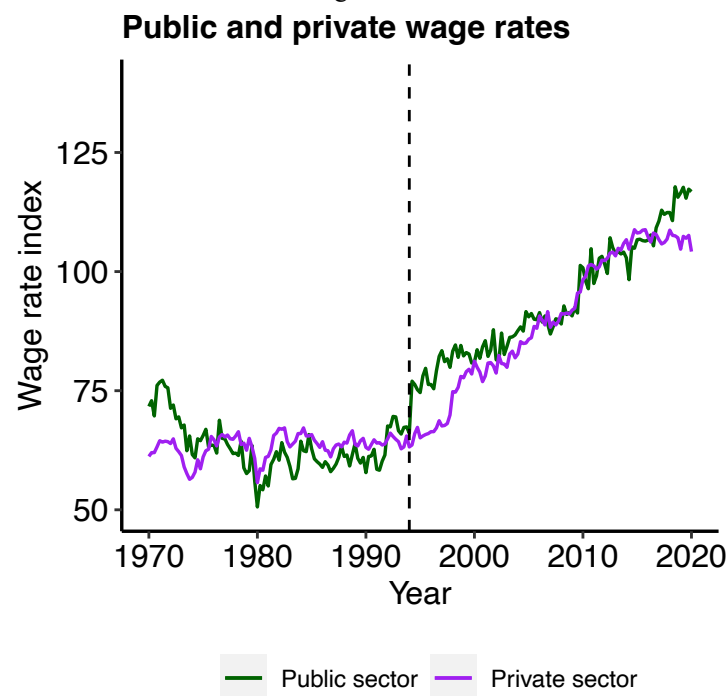
Relative average wage rates in manufacturing relative to mining. Author's calculation. Data from Statistics South Africa and the South African Reserve Bank.

Figure 14.



Natural resource rents as a % of GDP. Author's calculation. Data from the World Bank.

Figure 15.



Indexes of public and private sector wage rates. Dashed line gives transition to democracy. Author's calculation. Data from the South African Reserve Bank.

## Appendix B

Table 3.

Variable	Test statistic	1%	5%	10%
Mining wage share	-2.0159784	-3.46	-2.88	-2.57
Manufacturing wage share	-0.2182683	-3.46	-2.88	-2.57
Aggregate wage share	-1.2259405	-3.46	-2.88	-2.57
Mining wedge	-1.2099374	-3.46	-2.88	-2.57
Manufacturing wedge	-1.4698734	-3.46	-2.88	-2.57
Government consumption share	-1.6821701	-3.46	-2.88	-2.57
Real effective exchange rate	-2.7259342	-3.46	-2.88	-2.57
Trade share	-2.7037703	-3.46	-2.88	-2.57
Manufacturing capacity utilization	-2.6882902	-3.46	-2.88	-2.57
FIREBS value added share	-0.6714113	-3.46	-2.88	-2.57
Export share	-2.5545783	-3.46	-2.88	-2.57

Augmented Dickey-Fuller statistics. Last three columns are critical thresholds.

Table 4.

	Breusch-Pagan	Box-Ljung	Shapiro-Wilk	Breusch-Godfrey
Reg1.1	0.20	0.91	0.76	0.35
Reg1.2	0.09	0.88	0.92	0.57
Reg1.3	0.49	0.69	0.68	0.31
Reg1.4	0.72	0.78	0.86	0.56
Reg1.5	1.00	0.99	0.22	0.98
Reg1.6	0.45	0.93	0.44	0.77

P-values from diagnostic tests for regressions 1.1-1.6 (dependent variable: mining wage share).

## Appendix C

Table 5.

	Regression 2.1	Regression 2.2	Regression 2.3	Regression 2.4	Regression 2.5	Regression 2.6
Ln(Manufacturing WS).t-1	-0.032 (0.025)	-0.058* (0.032)	-0.049 (0.031)	-0.014 (0.034)	-0.035 (0.035)	-0.045 (0.033)
$\Delta$ Ln(Manufacturing WS).t-1	0.089 (0.103)	0.083 (0.097)	0.000 (0.097)	-0.080 (0.102)	-0.091 (0.101)	-0.081 (0.106)
$\Delta$ Ln(Manufacturing WS).t-2		0.029 (0.097)	0.008 (0.097)	-0.020 (0.098)	0.008 (0.096)	
$\Delta$ Ln(Manufacturing WS).t-3		0.212** (0.097)	0.203** (0.092)	0.185* (0.094)	0.219** (0.093)	
Ln(Capacity utilization).t-1	0.030 (0.088)	-0.048 (0.098)	-0.057 (0.095)	-0.033 (0.104)	-0.047 (0.104)	-0.120 (0.094)
$\Delta$ Ln(Capacity utilization).t	-0.264* (0.142)	-0.266* (0.140)	-0.349** (0.135)	-0.246* (0.145)	-0.281* (0.142)	-0.343** (0.132)
$\Delta$ Ln(Capacity utilization).t-1	-0.027 (0.149)					
$\Delta$ Ln(Capacity utilization).t-2	-0.005 (0.143)					
$\Delta$ Ln(Capacity utilization).t-3	-0.179 (0.142)					

Newey-West standard errors reported in brackets.

Lag structure chosen according to the AIC

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

	Regression 2.1	Regression 2.2	Regression 2.3	Regression 2.4	Regression 2.5	Regression 2.6
$\Delta \text{Ln}(\text{Capacity utilization}).t-4$	0.110 (0.144)					
$\text{Ln}(\text{Unemployment rate}).t-1$		-0.022 (0.024)	0.005 (0.024)	0.029 (0.026)	0.022 (0.025)	
$\Delta \text{Ln}(\text{Unemployment rate}).t$		0.013 (0.041)	0.024 (0.039)	0.043 (0.039)	0.055 (0.039)	
$\text{Ln}(\text{Government Consumption \% GDP}).t$					0.089 (0.061)	0.071 (0.060)
$\Delta \text{Ln}(\text{Government Consumption \% GDP}).t-1$					-0.124 (0.083)	-0.106 (0.082)
$\text{Ln}(\text{Trade openness}).t-1$				0.058* (0.029)	0.077** (0.031)	0.057 (0.036)
$\Delta \text{Ln}(\text{Trade openness}).t$				-0.006 (0.040)	0.009 (0.040)	0.007 (0.041)
$\Delta \text{Ln}(\text{Trade openness}).t-1$				-0.057 (0.039)	-0.060 (0.038)	
$\Delta \text{Ln}(\text{FIRE \& BS \% GDP}).t$						0.201 (0.303)
$\Delta \text{Ln}(\text{REER}).t$			0.052**	0.060**	0.055*	0.057*

Newey-West standard errors reported in brackets.

Lag structure chosen according to the AIC

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

	Regression 2.1	Regression 2.2	Regression 2.3	Regression 2.4	Regression 2.5	Regression 2.6
trend	0.000 (0.000)	0.000* (0.000)	0.000* (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Num.Obs.	104	104	104	104	104	107
R2	0.114	0.152	0.255	0.297	0.346	0.287
R2 Adj.	0.030	0.070	0.166	0.186	0.225	0.188
AIC	-544.8	-549.3	-558.9	-558.8	-562.3	-579.0
BIC	-515.7	-520.2	-524.5	-516.5	-514.7	-538.9
Log.Lik.	283.407	285.645	292.427	295.414	299.139	304.477

Newey-West standard errors reported in brackets.

Lag structure chosen according to the AIC

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 6.

	<b>Breusch–Pagan</b>	<b>Box–Ljung</b>	<b>Shapiro–Wilk</b>	<b>Breusch–Godfrey</b>
Reg2.1	0.51	0.97	0	0.78
Reg2.2	0.21	0.80	0	0.40
Reg2.3	0.22	0.77	0	0.38
Reg2.4	0.53	0.88	0	0.66
Reg2.5	0.01	0.94	0	0.86
Reg2.6	0.00	0.99	0	0.95

P-values from diagnostic tests for regressions 2.1-2.6 (dependent variable: manufacturing wage share).

<sup>1</sup> The large degree of variation at the sector level contrasts with the ‘Kaldor facts’ (Kaldor 1956).

<sup>2</sup> See Figures 8-10 in Appendix A.

<sup>3</sup> See Tilly (1999), Michie (2020), and Acemoglu and Robinson (2015).

<sup>4</sup> See Chatterjee *et al.* (2021) for a comprehensive account.

<sup>5</sup> See Nattrass (1994, 348), Ismail (1993), and Harris (1993, 95).

<sup>6</sup> Interpreting this variable as a measure of the size of the welfare state is complicated by the large military expenditure share of government consumption inherited from the apartheid regime, and efforts to curtail this form of wasteful expenditure after democracy, as well as cyclical variation of this variable corresponding to the role of automatic stabilizers amid output fluctuations. Analyzing the trend of this variable post-apartheid is also complicated by developments in the latter years of apartheid. During the 1980s, P.W. Botha (prime minister from 1978-1984 and state president from 1984-1989) devised the ‘Total Strategy’ for maintaining white minority rule, built on the multiple

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fronts including exerting brutal military force and concessions for creating a black middle class to facilitate efforts to divide-and-conquer. Both aspects are considerably associated with a dramatic increase in the government consumption share of GDP over the course of the 1980s.

<sup>7</sup> World Bank national accounts data suggest, in 2019 SA's government consumed roughly 3% more of national output than the average upper middle-income country and 2% more than the average high-income country.

<sup>8</sup> See Inchauste *et al.* (2015) and Chatterjee *et al.* (2021, 31). Lustig (2016) compares fiscal redistribution in SA with Brazil, Chile, Colombia, Indonesia, Mexico and Peru, finding that the redistributive effect is largest in SA.

<sup>9</sup> See Gouzoulis *et al.* (2021, 11). The authors argue that “[g]iven the history of discriminatory public welfare expenditures in South Africa and narrow welfare reforms in the post-democratisation period, we do not expect government consumption to increase the private sector wage share as in the standard literature” (Gouzoulis *et al.* 2021, 11). Taking for granted the claim that welfare reforms were narrow (addressed in the footnote above), and assuming the effects of discriminatory welfare expenditures during the apartheid era dominate any effects after the period where state-institutionalized discrimination ended – most years in the authors’ study, why should the private sector wage share be unambiguously falling in discriminatory public spending? Even if black wages were falling in discriminatory public expenditures, a dubious proposition, white workers’ wages may be increasing in public expenditure and the private sector wage share is a measure of all wages paid, including both black and white workers.

<sup>10</sup> See Statistics South Africa (2019, 29).

<sup>11</sup> See Figure 15 in Appendix B.

<sup>12</sup> An under-discussed aspect of the politics underlying post-apartheid macro-policy has been Nelson Mandela’s explicit support for key elements of the policy regime that would come to be scrutinized by critics of GEAR. In his first State of the Nation Address, Mandela (1994) emphasized his government’s commitment to including the trade union movement and civic organizations into decision making. However, in the same breath he also stated a commitment to “continue existing programmes of fiscal rehabilitation” and expressed determination “to make every effort to contain real general government consumption at present levels and to manage the budget deficit with a view to its continuous reduction.” Interviews (Trew 2014, 2015) with early post-apartheid finance ministers, Chris Liebenberg and Trevor Manuel, independently demonstrate the influence of international expectations and expectations of financial market actors to appointments to the economic portfolio. Both interviewees intriguingly indicate that Mandela made his first appointment of finance minister (Liebenberg) on the day François Mitterrand would conduct one of the first state visits to the newly democratic South Africa. The appointment of Liebenberg was perhaps indicative of attempts to mitigate adverse financial market reactions of the sort that characterized the Mitterrand electoral victory in 1981.

<sup>13</sup> See Hobson (1900, 17).

<sup>14</sup> See Hirsch (2005, 43), Padayachee and van Niekerk (2019, 85), and Maharaj and Jordan (2021, 104 and 126).

<sup>15</sup> See Richards (1933, 338) for an account reminiscent of ‘Lewisian’ concepts, two decades prior to Lewis (1954).

<sup>16</sup> See Figure 7 in Appendix A.

<sup>17</sup> Considering Rowthorn’s (1977) distinction between ‘expectation’ and ‘anticipation’, and De Janvry & Sadoulet’s (1983) analysis of social disarticulation, it seems relevant to ask whether mineworkers bargaining choices are influenced by the distribution (as opposed to level) of income at the firm or sector level.

<sup>18</sup> See Chinguno (2015).

<sup>19</sup> See van der Ploeg (2011).

<sup>20</sup> See Aron and Muellbauer (2000).

<sup>21</sup> See Adelman and Robinson (1989).

<sup>22</sup> The structure of South African inequality resulting from spatial and racial stratification may make it harder for workers to identify windfalls reaped by capitalists. See Posel and Rogan (2018, 13) for related evidence.

<sup>23</sup> See Edwards (2005).

<sup>24</sup> See Erten *et al.* (2019).

<sup>25</sup> See Chamber of Mines of the South African Republic (1897, 4-7). See also van Onselen (1979, 292). In the cultural sphere, the William Kentridge sketch ‘Reserve Army’ (Image 1) depicts a miner’s Ife-like head adorned with a headlamp.

<sup>26</sup> See Makgetla (2004).

<sup>27</sup> Indeed, Aron and Muellbauer (2000) use changes in capacity utilization to proxy for changes in labor market tightness – an unconvincing proxy in a dual economy setting and where mark-ups are endogenous to goods market tightness.

<sup>28</sup> See Flaschel and Skott (2006).

<sup>29</sup> See Tomaskovic-Devey *et al.* (2015).

<sup>30</sup> See Adelman and Robinson (1989) and Feiwel (1974).



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- <sup>31</sup> See Herr (2019).
- <sup>32</sup> See Lewis (1954, 157).
- <sup>33</sup> Kalecki held similar views FitzGerald (1990, 185)
- <sup>34</sup> See Kalecki (1938).
- <sup>35</sup> See Mitra (1954, 88).
- <sup>36</sup> See Marx (1867, 751) for a related account.
- <sup>37</sup> Munro (2008) discusses criticisms of this perspective.
- <sup>38</sup> Martins and Skott (2021) is an exception.
- <sup>39</sup> See Bewley (1999).
- <sup>40</sup> In manufacturing, where data for capacity utilization is abundant, observing effects of commodity boom-driven demand surges on gross profits may be informative. This brings up the Hirschmanian issue of linkages. See particularly Gelb (1988, 33).
- <sup>41</sup> Implausibly, the mining value-added share is in decline during the commodity boom. Resultingly, estimates of mining profits as a share of GDP are inconsistent with the World Bank's estimates of 'natural resource rents' (see Figure 14 in Appendix A). An explanation might be considerable capital flight from South Africa's mining sector, addressed in Aboobaker *et al.* (2021).
- <sup>42</sup> See de Janvry and Sadoulet (2016, 189).
- <sup>43</sup> See Appendix B.
- <sup>44</sup> Output from ARDL models is represented by variables run in levels, whereas ECM output is run in first differences, denoted by  $\Delta$ .
- <sup>45</sup> The unexplained post-2008 upward trend in the manufacturing wage share may be a reason for the very low p-value to the Shapiro-Wilk tests, indicating the presence of non-normal residuals.
- <sup>46</sup> Other narratives have emphasized conspiracies invoking a role for 'White Monopoly Capital.' See Aboobaker (2019) for a critical account.
- <sup>47</sup> See Figure 2 and Figure 15.
- <sup>48</sup> See Russell (2007).