The Economic Impact of Fiscal Austerity in South African Provinces

Growing Gauteng Together

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Abstract

This study expands on Gauteng Provincial Treasury (2019a), who studied the impact of fiscal austerity on the Gauteng economy, by including all the nine provinces in the analysis. Furthermore, an additional simulation which seeks to understand the impact of government productivity improvements in mitigating the negative impact of fiscal austerity in provinces. To achieve this, the GPT-TERM model was utilised. The results show that in the main the fiscal austerity results in lower economic growth in all provinces. However, in some provinces, the lower demand or expenditure increases exports, particularly in provinces with ports. The government productivity improvements indeed mitigated against the negative impact of fiscal austerity. This is pronounced in the welfare impact. Overall, the cost of fiscal austerity in provinces seem to outweigh the benefit.

1 Introduction

In Gauteng Provincial Treasury (2019a) a central fiscal policy of fiscal austerity in South Africa was discussed. In particular fiscal austerity as it pertains to national government transfers to the various provinces and the impact thereof. The motivation of the study draws from that recent from the intention to reduce transfers to provinces by 5, 6 and 7 per cent between the 2020/21 to 2022/23 financial years respectively.

With a slowing economy and the midst of one of the longest downturns on record, the fiscal position of the country continues to deteriorate, with the sovereign debt estimated to breach 70 per cent of GDP in the medium term. The critical question at the moment is how to reduce this debt with the least impact on the economy and social services. Various measures have been introduced in recent years including the freezing of increases in provincial transfers, and the reprioritization of expenditure to exploit efficiencies. However, without significant growth, the fiscal position continues to deteriorate as take revenue growth slows. The reduction in the baseline projections of national transfers to provinces is the latest of these measures.

Economics has long discussed the impact of fiscal austerity and consensus, especially in a low growth environment, remains elusive. As shown in Gauteng Provincial Treasury (2019a) the impact of a reduction in national transfers to provinces is in the main negative for the Gauteng economy. In essence, reducing government expenditure reduces economic activity which in turn reduces overall economic growth in the province, with overall employment declining as the government is a key employer in South Africa.

However, methodologically some questions remain from Gauteng Provincial Treasury (2019a):

- The study focuses only on the impact on Gauteng, but reductions by national government apply to all provinces. Since the model accounts for interprovincial economic activity, this may have biased the Gauteng results on the upside. Further investigation is necessary.
- Gauteng Provincial Treasury (2019a) did not consider any productivity scenario as provinces may have to find new efficiencies which allow them to offer the same level of service with fewer resources.

This study, therefore, aims to study add a national perspective on Gauteng Provincial Treasury (2019a). That is, it reduces the transfers at a national level and allows the GPT-TERM model to endogenously determine the economic impact on the provincial economies. Furthermore, this study will focus on the impact of potential increases in productivity by provinces to counter the impact of fiscal austerity. This study, is, however, not intended to be a comparison of different policy alternatives on the implementation of fiscal austerity by the national government. It is an analysis of the potential impact on provinces of this particular fiscal austerity potential policy by the national government.

2 Fiscal Austerity and Productivity in Governments

2.1 Fiscal Austerity

In times where a country‘s debt rises to an alarming level, in most cases when the sovereign debt is almost the size of its GDP, to mitigate that some governments use fiscal austerity measures. To understand the concept of fiscal austerity measures, one needs to understand what austerity means. Austerity is defined as a fiscal contraction that leads to a significant increase in aggregate unemployment (Wren-Lewis (2016)).

Therefore, when the government decides to use contractionary policy measures, this can lead an austerity situation. Banerjee & Zampolli (2019) argued that fiscal austerity has less of a negative impact on the economys output if there is a high level of public debt. However, it is important to note that the costs of fiscal austerity still exists.

However, austerity measures cannot be entirely disregarded due to the undesirable effects it causes on the economy, monetary policy and other policies within the basket of fiscal policy which can be used to mitigate the negative effects of austerity measures. To allow the effectiveness of the austerity measures, it is important to determine the timing of implementing policies that are within the scope of austerity measures and the right combination of these policies, and secondly, accompanying policies which mitigate the negative effects of austerity should also be put in place as part of the austerity measure package (Alesina et al. (2019)).

There are cases were fiscal austerity measures raised questions of whether austerity is an appropriate tool to use in times of high sovereign debt levels that is accompanied by low economic growth (Kleis & Moessinger (2016)). European countries between 2010 and 2014 were there was a recession, and some of the countries like Spain and Greece had a debt crisis, are a good example. These economies needed to implemented fiscal consolidation policies, while their economies also needed growth-enhancing policies to deal with the recession.

The traditional Keynesian theory suggests that fiscal consolidations are expected to depress economic growth, but there are also counter-arguments with evidence which suggests that spending cuts and increase in tax could have a positive impact on economic growth (Kleis & Moessinger (2016)). However, the expansionary economic impact implies more specifically in the short-run.

The positive effects are possible on the demand side and supply sides. First, on the demand side, an increase in aggregate demand through improved consumer expectation (consumers will expect lesser tax increases in the future) if fiscal consolidation is implemented through tax increases. This will result, in an increase in private expenditure, motivated by expected future tax relief. This is commensurate with an improvement in sovereign debt risks and results in lower real interest rates on gov-

ernment bonds. This can therefore boost consumption on the demand components that are sensitive to interest rate changes.

An expansionary effect through the supply side is possible through the labour market. When the government implements contractionary measures by reducing government employment, this will induce the labour to demand lower wage increases, and thus reducing wages in the labour market. In the private sector, lower labour costs increase their profits and private investment. It is important to note that the positive effects of contractionary fiscal adjustment are only in the short run, and are possible through spending cuts rather than tax increases.

Contrarily, based on empirical evidence studying the impact of fiscal consolidation done on Organisation for Economic Co-operation and Development (OECD) countries, Banerjee & Zampolli (2019) showed that estimated effects of fiscal consolidation are contractionary on average. Economic output lowers on impact, subtracting about 0.7 percentage points in the first two years, then after the impact diminishes in in the third year, and completely dissipates by the fourth year. After the fourth-year output returns to the levels that it would have reached before the impact.

Moreover, when looking at fiscal consolidation and its interaction with other macroeconomic variables, it was found that the different variables respond differently. For instance, when monetary policy is loose there is no evidence that fiscal consolidation is costly, the cost is only evident on a tight monetary policy scenario (Banerjee & Zampolli (2019)). On the current account balance, fiscal consolidation is marginally costly when the current account is in deficit, and it is in surplus the costs are much higher. Observing private credit growth shows that when private credit is growing above average there are almost no adverse effects from fiscal consolidation, and a cost effect only exists when credit growth is below average.

2.2 Productivity in governments

When governments do not measure the productivity of their departments and programmes, it is difficult to measure the return on their spending and this situation makes government activity less efficient than it could be (McKinsey Center for Government (2017)). Furthermore, productivity is an essential variable to consider when sharing best practices and the lack of measurement thus inhibits the spread of best practices between states. The researchers claim to have developed a database and analysis tool that has identified several governments with high rates of productivity and assert that other governments could learn from these to reduce their spending without a loss of welfare or to achieve more with their current budgets. This tool focuses on seven sectors, namely, primary, secondary, and tertiary education, health care, tax collection, road transport, and public safety.

Having interviewed many current and former government officials, professionals in the finance and commerce sector and captains of industry, the authors have come concluded that governments can improve their productivity by investing in cutting

edge skills development in finance, commerce, digital technology and data analytics, as well as talent management. The researchers say that this will require large changes and governments will need to take an approach that is both ambitious and well structured. However, some variance in productivity is driven by structural differences such as geography and population density and are thus resistant to improvement.

It was found that between 2008 and 2014, costs increased in all seven sectors on average, across the 42 countries that were considered in the study. This was accompanied by improved outcomes in five sectors, with primary and secondary education being the two where outcomes declined in spite of higher costs. However, this does not mean that the gains in the other five sectors were achieved efficiently for every government. It was shown that among countries that attained similar levels of output in a sector, the least efficient country spent at least double per unit of output as the most efficient country. In addition, while costs rose in all sectors on average, every sector had countries where costs decreased while outcomes improved. However, in countries that are already performing well in a sector, diminishing marginal returns appears to be a significant factor and the authors recommend that governments consider diverting resources to areas in which they underperform instead of continuing to pursue even better outcomes in an area of existing strength.

3 GPT TERM model

According to Wittwer & Horridge (2010) The Enormous Regional Model (TERM) is an advancement on previous regional modelling approaches such as the bottom-up approach by being able to estimate solutions for more regions and sectors than previously possible. In particular, the TERM approach achieves this by disaggregating national input-output tables, unlike the previous approaches which relied on limited regional input-output tables. As such the TERM approach utilises a massive databse with variable aggregation techniques which save computing overhead. Therefore, the TERM approach has made advances in regional modelling studies, for example, see Horridge et al. (2003).

Particularly, the GPT TERM model is a dynamic multi-regional (or national and provincial) computable general equilibrium (CGE) model of South Africa (Gauteng Provincial Treasury (2019b)). The model is constituted by 9 regional economies (or provinces), 52 industries and commodities, 48 households, 12 income groups, 6 indirect taxes, and 10 occupations. Important to this study, the GPT TERM model has a fully-fledged government finance module (GFS) which details government income and government expenditure. The GPT TERM model estimates policy impacts from the years 2016 to 2025.

The GFS is made of three broad components (Gauteng Provincial Treasury (2019b)). First, all the main sources of government income such as income taxes, taxes on goods and services. Second, all the main expenditure items which include operating

expenses, grants, and transfers. Lastly, the GFS reports aggregate changes in the government surplus or deficit per province and nationally. The GFS can, therefore, interact with the core TERM model, allowing (to some extent), the interaction of fiscal policy with the broader economy at regional and national levels.

4 Policy Simulations

4.1 SIM 1: National reduction in government spending

Following on Gauteng Provincial Treasury (2019a), we extend the reduction in government expenditure by Gauteng to all the other provinces. In essence, we allow the model to calculate a baseline scenario based on the latest forecast from the National Treasury (see Table A.1). Inline with Gauteng Provincial Treasury (2019a) government expenditure in all provinces is reduced by 5, 6, and 7 per cent in 2020, 2021, and 2022, respectively. These reductions are shown in Tables B.1 to B.4.

Gauteng Provincial Treasury (2019a) postulate this policy simulation as a reduction in national government transfers to provinces. However, for the GPT TERM model, these are viewed as exogenous reductions by provincial governments, and therefore through *equations* 1 and 2, the impact on the overall economy is estimated. A positive relationship is typical between government expenditure and the gross domestic product (GDP), or that government expenditure is pro-cyclical.

$$Y_i = C_i + I_i + G_i + (X_i - I_i) \tag{1}$$

$$\frac{\partial Y_i}{\partial G_i} = + \tag{2}$$

where i = Gauteng, Limpopo, North West, Mpumalanga,KwaZulu Natal, Free State, Eastern Cape, Western Cape, Northen Cape.
Y_i = real GDP by province.
C_i = real household expenditure by province.
I_i = real investment expenditure by province.
G_i = real government expenditure bt province.
Xi = real exports by province.
I_i = real imports by province.

The GPT TERM model disaggregates between two types of governments (National and Provincial), which allows for various scenarios which can be based on a combination of the 9 provincial governments in the model. In this case, all provincial governments are shocks simultaneously for three years based on individual government expenditure reductions for each provincial government. Through the GFS

model, we then proxy the overall 'savings' to the government in the form of a surplus. This can be thought of as a benefit of the reductions.

However, it is expected that the reductions in government expenditure individually and jointly have an impact on the national economy and national government. Since the national government relies on the national economy for its income sources, there is a likely impact on the national government of the regional reductions in government expenditure. This can be thought of as the cost of the reductions. In this case, the reduction in regional government expenditure can be thought of as transfers that are withheld by the national government to provinces, forcing provinces to spend less. Since this withholding of funds is not directly possible in the GPT TERM model, it is proxied as a reduction in government expenditure by provincial governments. Therefore, in this scenario, the benefit must exceed the cost for a sound policy position.

4.2 SIM 2: Government productivity improvement

SIM 2 builds on SIM 1 by adding the exogenous improvements in government productivity in response to the decline in provincial government expenditure. In simple terms, the provincial government in this scenario do more with less. In a physical sense, this is shown in *equations* 3 and 4 where employed capital and labour is augmented by a technology factor in each sector to produce a higher level of output (or GDP).

$$Y_{ij} = A_{ij}F(K_{ij}, L_{ij}, O_{ij}) \tag{3}$$

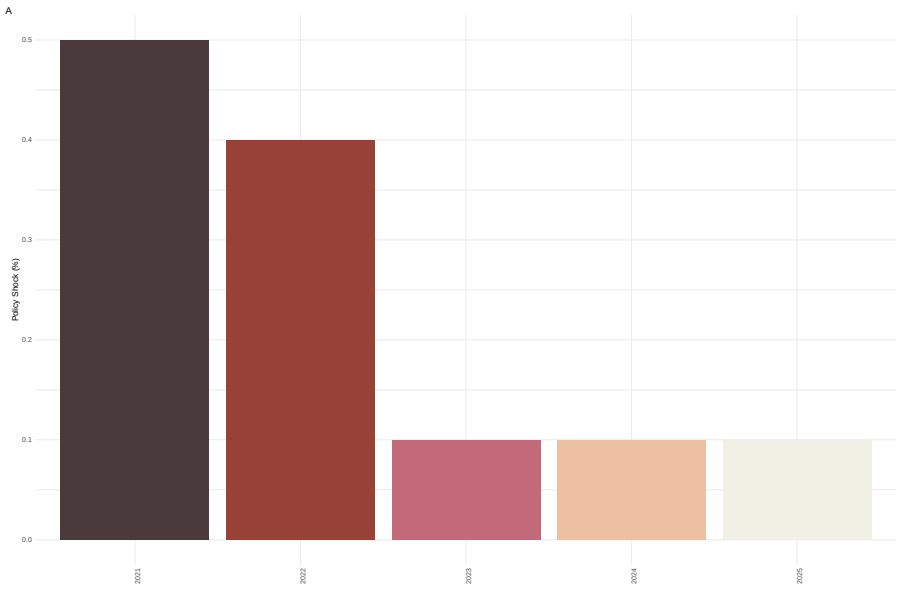
$$\frac{\partial Y_{ij}}{\partial A_{ij}} = + \tag{4}$$

where $j = 52$ sectors in the GPT TERM model (see Tables C.2 and C.3).
A_{ij} = technology factor on labour and capital by province and sector within.
K_{ij} = physical capital by province and sector within.
L_{ij} = labour by province and sector within.
O_{ij} = other production inputs by province and sector within.

The GPT TERM model has three government sectors (education, health, and other). The technology factor in each of these sectors is increased on the same sliding scale to proxy technological improvements over the scenario period, that is, from the years 2021 to 2025. As shown in Figure 1 below, the shock is initially more in the immediate years of the reduction in provincial government expenditure, then subsequently levels of. This assumes that the shock of the reductions would be impactful after the first the initial reductions, then dissipate.

Therefore, the expectation is that the improvement in government productivity can counter the impact of the decline in expenditure in the government sectors in each province, and jointly at a national economy level. However, productivity cannot improve without investment, therefore in the surpluses generated by the reduction in government expenditure cannot materialise as pronouced as in SIM 1. However, improved government productivity is expected to be growth and welfare enhancing.

Figure 1: Government Sector Productivity Shock in Provinces



Source: Gauteng Treasury (2020)

5 Results

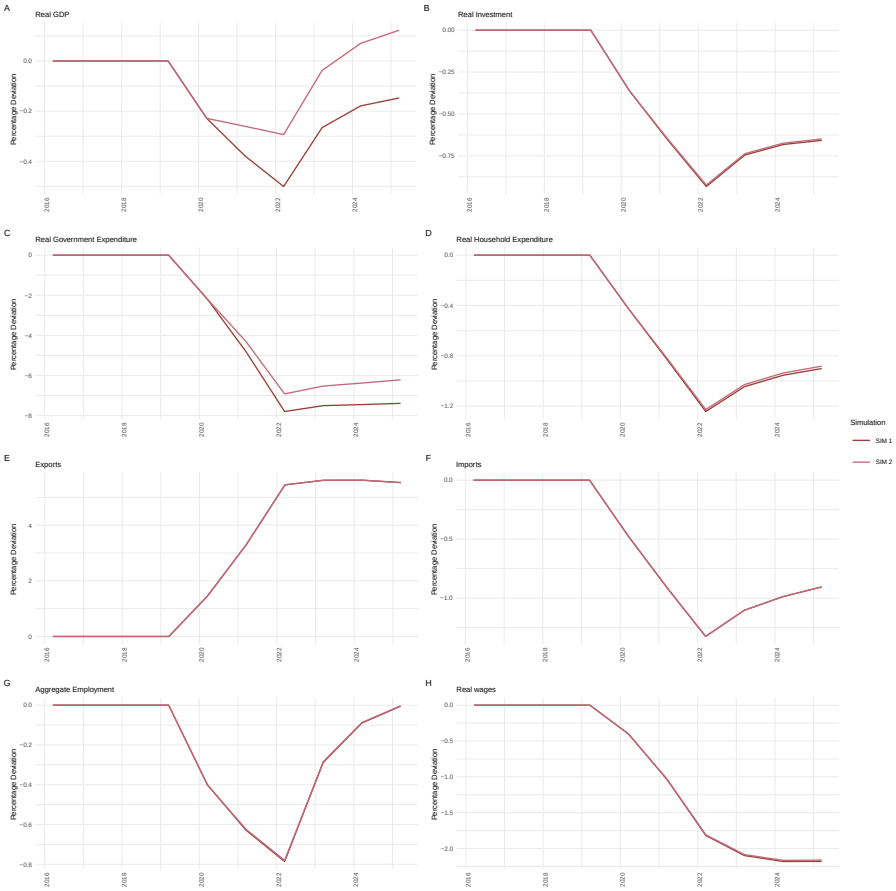
5.1 Macroeconomic Impact

First, we focus on the national and provincial macroeconomic results. Figures 2 and 3 show a summary of the macroeconomic results. The national and provincial results show that the reduction in expenditure by provinces is similar for SIM 1 and 2, except for the impact on GDP. As expected the reduction results in a decline in all macroeconomic aggregates except for exports. Household expenditure declines as in part the government offers income support and employment to households. This is evidenced by the commensurate decline in aggregate employment and real wages. Aggregate employment recovers as real wages decline.

Also in part government expenditure can be regarded as investment expenditure such as the building of infrastructure. Therefore, this in part explains the decline in investment. SIM 2 through the productivity improvements is growth-enhancing, however, this does not mitigate against the reduction in expenditure in full. Imports follow the business cycle as these in the main constitutes of production inputs. The reduction in expenditure or demand also leads to a shift from production for the local market to production for the international market, which is also supported by

the decline in wages which improves competitiveness.

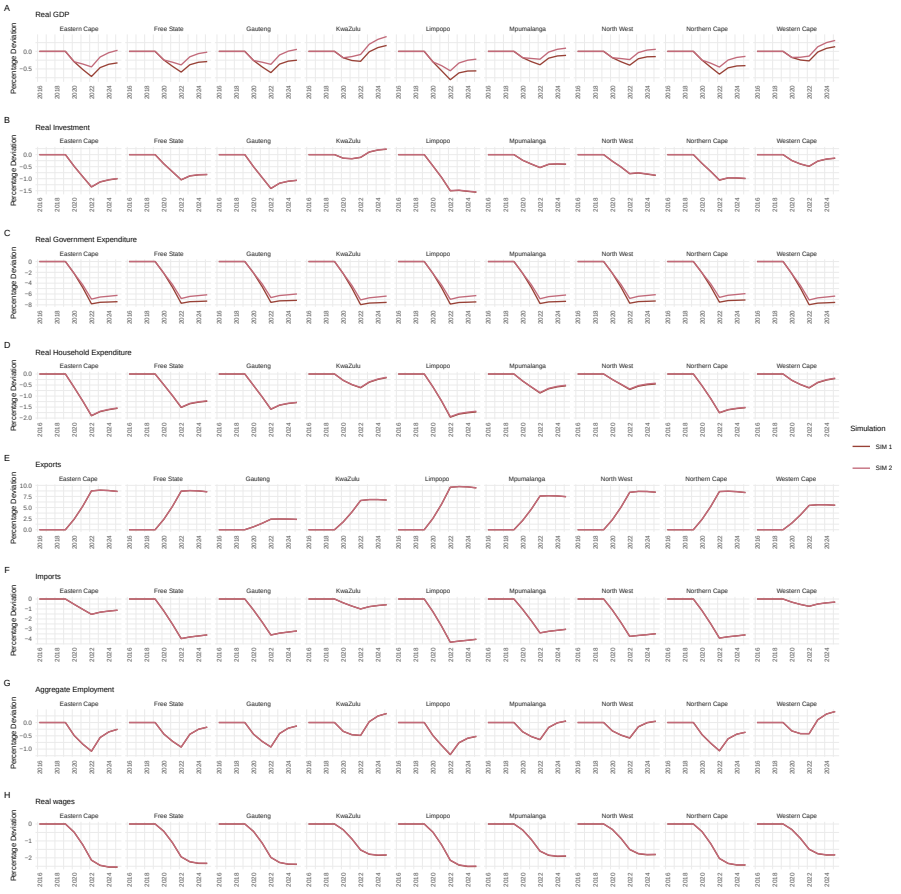
Figure 2: National Macroeconomic Impact



Source: Gauteng Treasury (2020). Note: The results are cumulative.

The same story unfolds at a provincial level. However, the provinces with significant ports (KwaZulu Natal and Western Cape) benefit from the increase in exports which counters the overall decline in GDP. Investment, household expenditure, employment and real wages in export-focused provinces do not decline as aggressively when compared to the other provinces. KwaZulu Natal and Western cape investment increase investment and employment in support of increased exports. All provinces increase exports but not necessary with the commensurate increase investment and employment.

Figure 3: Provincial Macroeconomic Impact



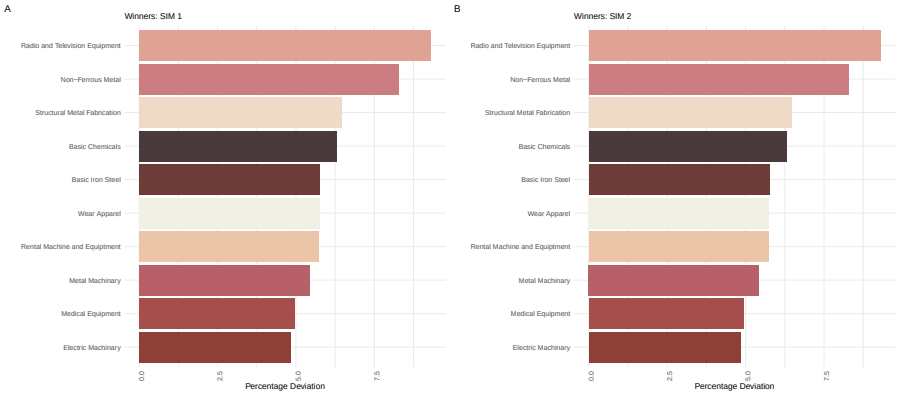
Source: Gauteng Treasury (2020). The results are cumulative.

5.2 Sectoral Impact

At a sectoral level in both scenarios, the sectors that benefit the most nationally are radio and television equipment, non-ferrous metals, structural metal fabrication, base chemicals, and basic iron steel as shown Figure 4. Most of these sectors are export-based and support the aggregate increase in exports.

The three government sectors suffered the most in both simulations (see Figure 5). However, in SIM 2 the other government sector benefited from the increase in productivity. This suggests that productivity increases in government education and health do not necessarily contribute to current economic activity, but may impact economic activity in the long term (see Gauteng Provincial Treasury (2016)).

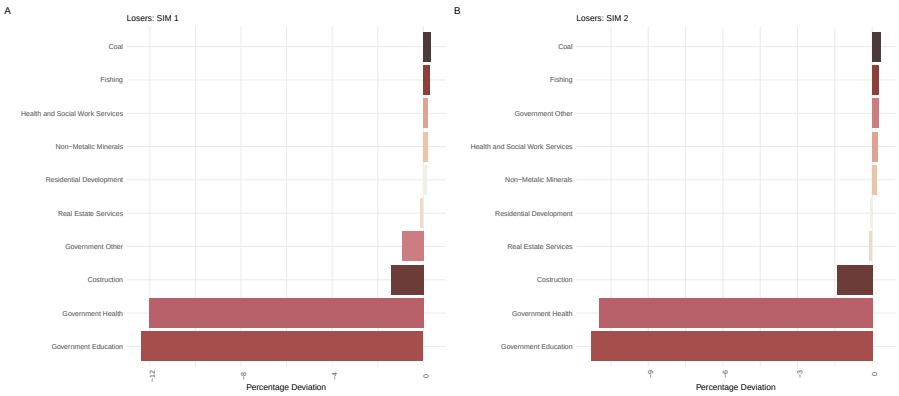
Figure 4: National Sectoral Impact (Winners)



Source: Gauteng Treasury (2020)

Similar sectors also benefit at a provincial level in both simulations (see Figure 6). Provinces with dominance in a specific industry benefit the most in that sector. For example, The Northern Cape benefits the most in the radio and television equipment sector.

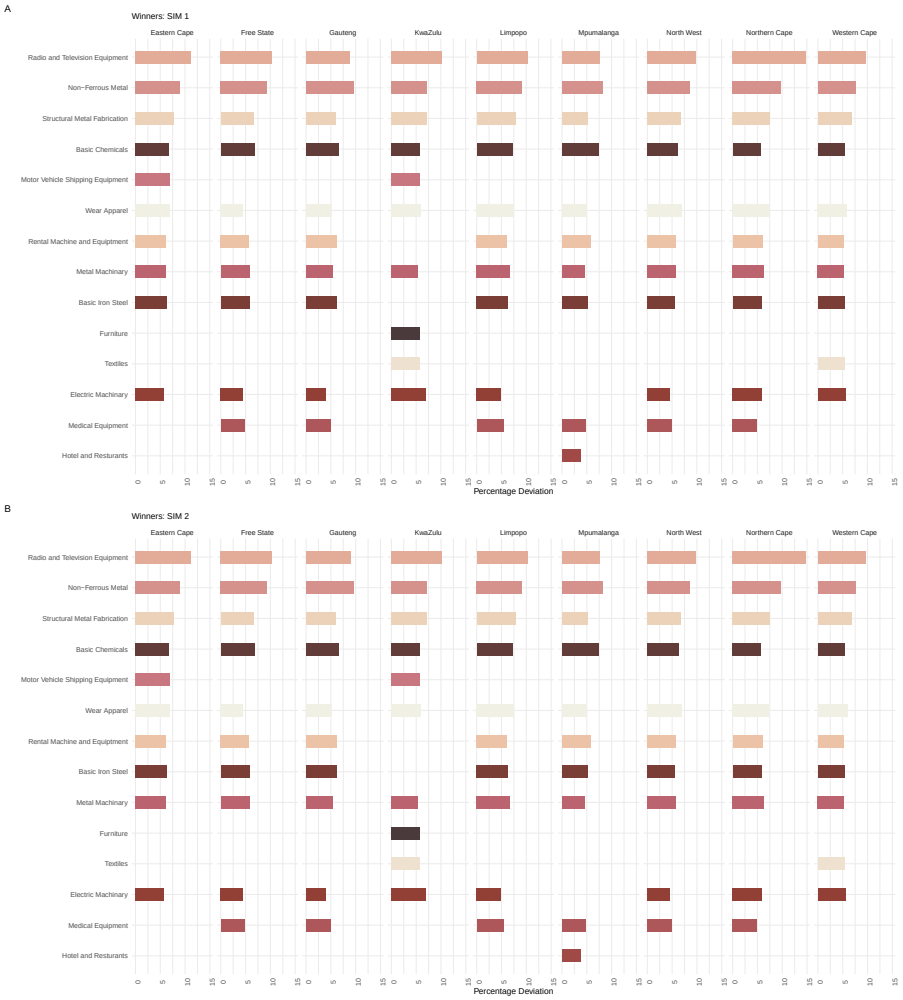
Figure 5: National Sectoral Impact (Losers)



Source: Gauteng Treasury (2020)

An interesting observation can be made on the motor vehicle shipping equipment sector in Figure 6. This sector was not in the 10 most benefiting sectors nationally but is particularly beneficial to the Eastern Cape and the KwaZulu Natal. A similar observation can be made on the textile sector which has dominance in KwaZulu Natal and the Western Cape.

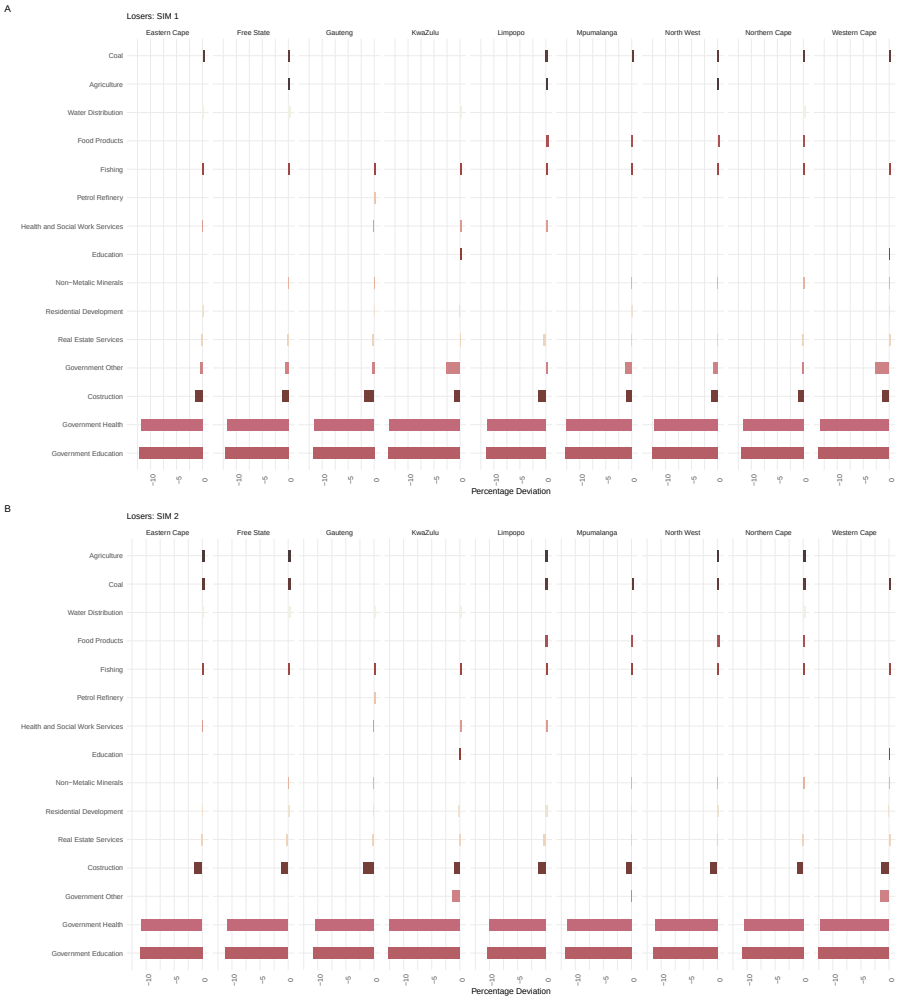
Figure 6: Provincial Sectoral Impact (Winners)



Source: Gauteng Treasury (2020)

Again, the provincial picture is similar to the nation in terms of the sectors that benefit the least in both simulations. In all provinces, government education and health sectors suffer the most. However, in SIM 2 the other government sector marginally benefits in some provinces. Mpumalanga and KwaZulu Natal are particular negatively affected in the other government sectors, indicating the importance of this sector in those provinces, versus the other provinces.

Figure 7: Provincial Sectoral Impact (Losers)



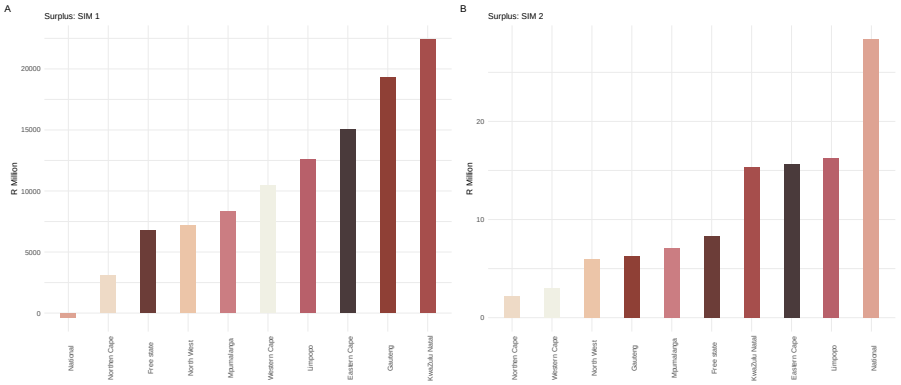
Source: Gauteng Treasury (2020)

5.3 Fiscal Impact

As explained above, a clear benefit of the reduction in government expenditure in the provinces in both simulations is the surpluses it generates. Regardless, if these 'surpluses' are viewed as funds withheld by the national government or voluntarily withheld by provinces or any other fiscal mechanism, in essence, a reduction in provincial budgets on the previous year is a reduction in expenditure. Figure 8 summarises the surpluses generated by both simulations for the national government and the 9 provincial governments.

Therefore the surplus can be understood as the actual benefit from the reduction of government expenditure. That is, cutting government expenditure improves the surplus, but it also indirectly reduce government income through lower economic growth in the general economy.

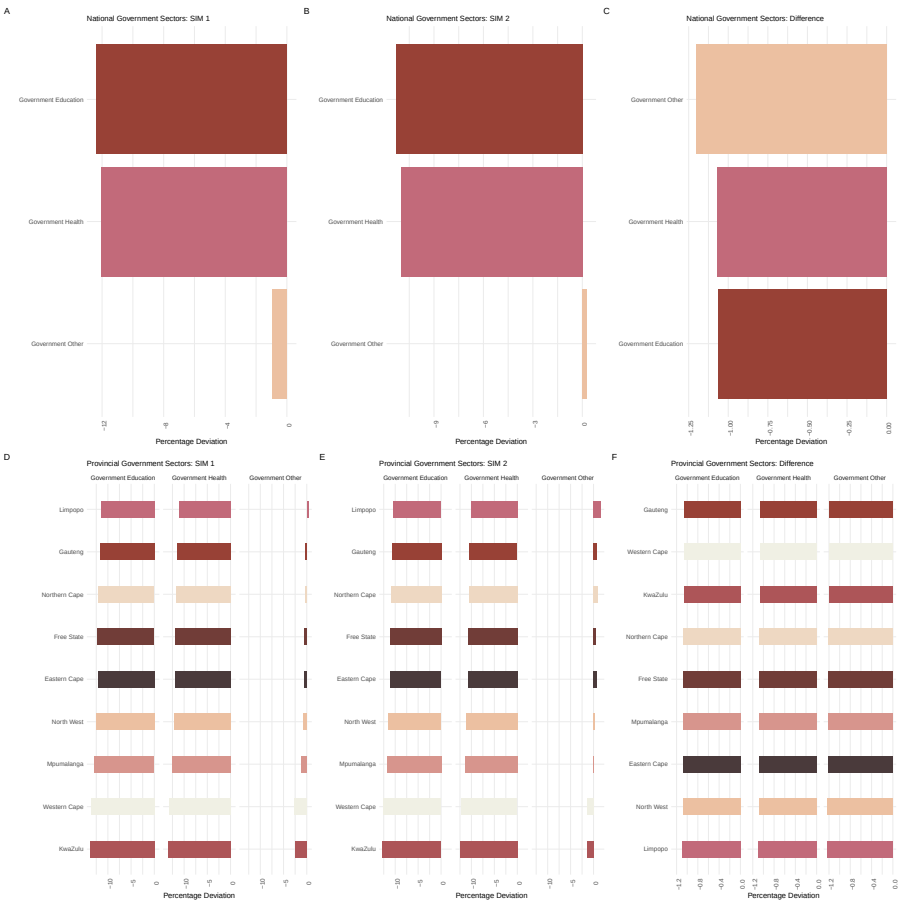
Figure 8: Fiscal Benefit of the Expenditure Reductions by 2025



Source: Gauteng Treasury (2020)

Figure 8 shows that for SIM 1 the surpluses grown in line with the percentage cuts (5, 6, and 7 per cent). These generate a R104 billion in surpluses by 2025 in SIM 1.

Figure 9: Activity in Government Sectors



Source: Gauteng Treasury (2020)

However, in SIM 2 the increase in productivity results increased (or increasing) government activity after the first year of surplus, and subsequently. This results in the surpluses financing more government activity in line with the improved productivity. Or in other words, the increased productivity can be achieved with increased investment in both human and physical capital. Therefore in SIM 2, the surpluses do not continue after 2022. Over the same period, SIM 2 generates R108 million in surpluses.

This increased government activity in SIM 2 is summarised in Figure 9. Both national and provincially, government activity in SIM 2 exceeds activity in SIM 1. This difference is particularly pronounced in the provinces with smaller governments (Limpopo, North West, and Eastern Cape, and Mpumalanga) which gain the most from productivity improvements. In SIM 1 the provincial cuts reduce GDP nationally, the national government generates a deficit since, unlike the provincial governments, most of its income is generated from the general economy. In SIM 2, the national government generates a surplus from its increased activity and a slower decline in GDP.

Table 1: Fiscal Costs of the Expenditure Reductions by 2025: SIM 1

	Limpopo	North West	Mpumalanga	Gauteng	Free state	Northen Cape	Western Cape	Eastern Cape	KwaZulu Natal	National
Income Tax	0	0	0	0	0	0	0	0	0	-15286
Company Tax	0	0	0	0	0	0	0	0	0	-2944
Payroll	0	0	0	0	0	0	0	0	0	-606
Property Tax	0	0	0	0	0	0	0	0	0	-277
VAT	0	0	0	0	0	0	0	0	0	-7320
Fuel	0	0	0	0	0	0	0	0	0	-301
Excise	0	0	0	0	0	0	0	0	0	-654
Gambling Tax	-2	-2	-2	-12	0	0	-5	-2	0	0
Motor Licenses	-7	-5	-6	-41	-8	-3	-4	6	10	0
Environment	0	0	0	0	0	0	0	0	0	-48
Customs	0	0	0	0	0	0	0	0	0	-1028
Other Taxes	0	0	0	0	0	0	0	0	0	1
Provincial Equitable Share	-911	-593	-679	-1735	-477	-257	-911	-1136	-1757	0
Other Grants	0	0	0	0	0	0	-3	0	0	-53
Sales Grants	-7	-5	-2	-22	-8	-2	-13	-9	-9	-53
Provincial Property Tax	-9	-3	-2	-18	-2	-1	0	-16	-1	-353
Other	-16	-1	-2	-4	-2	0	-7	-11	-6	-397
NFA	-1	0	0	0	-1	0	-3	-1	-1	-2
Total	-953	-610	-693	-1833	-496	-263	-945	-1170	-1764	-29321

Source: Gauteng Treasury (2020). Note: Numbers in R Million

The decline in GDP nationally, therefore, has a fiscal cost both the national government and provincial governments. However, this is particularly pronounced for the national government which generates most of its income from the economy. Tables 1 and 2 summarise these costs. The GPT TERM model estimates this cost at R29 billion for both SIM 1 and SIM 2. This is mainly driven by a decline in income tax, company tax, and VAT. Through the equitable share formula which governs how national government transfers funds to provincial governments and is built into the GFS (see National Treasury (2020)), the provincial equitable share declines across all provinces.

Table 2: Fiscal Costs of the Expenditure Reductions by 2025: SIM 2

	Limpopo	North West	Mpumalanga	Gauteng	Free state	Northen Cape	Western Cape	Eastern Cape	KwaZulu Natal	National
Income Tax	0	0	0	0	0	0	0	0	0	-15274
Company Tax	0	0	0	0	0	0	0	0	0	-2935
Payroll	0	0	0	0	0	0	0	0	0	-606
Property Tax	0	0	0	0	0	0	0	0	0	-277
VAT	0	0	0	0	0	0	0	0	0	-7343
Fuel	0	0	0	0	0	0	0	0	0	-301
Excise	0	0	0	0	0	0	0	0	0	-653
Gambling Tax	-2	-2	-2	-12	0	0	-5	-2	0	0
Motor Licenses	-7	-5	-6	-41	-7	-3	-4	6	10	0
Environment	0	0	0	0	0	0	0	0	0	-48
Customs	0	0	0	0	0	0	0	0	0	-1027
Other Taxes	0	0	0	0	0	0	0	0	0	1
Provincial Equitable Share	-920	-599	-686	-1753	-482	-260	-921	-1148	-1776	0
Other Grants	0	0	0	0	0	0	-3	0	0	-53
Sales Grants	-7	-5	-2	-22	-8	-2	-12	-9	-9	-53
Provincial Property Tax	-9	-3	-2	-18	-2	-1	0	-16	-1	-352
Other	-16	-1	-2	-4	-2	0	-7	-11	-6	-396
NFA	-1	0	0	0	-1	0	-3	-1	-1	-2
Total	-963	-616	-700	-1851	-501	-266	-955	-1181	-1783	-29319

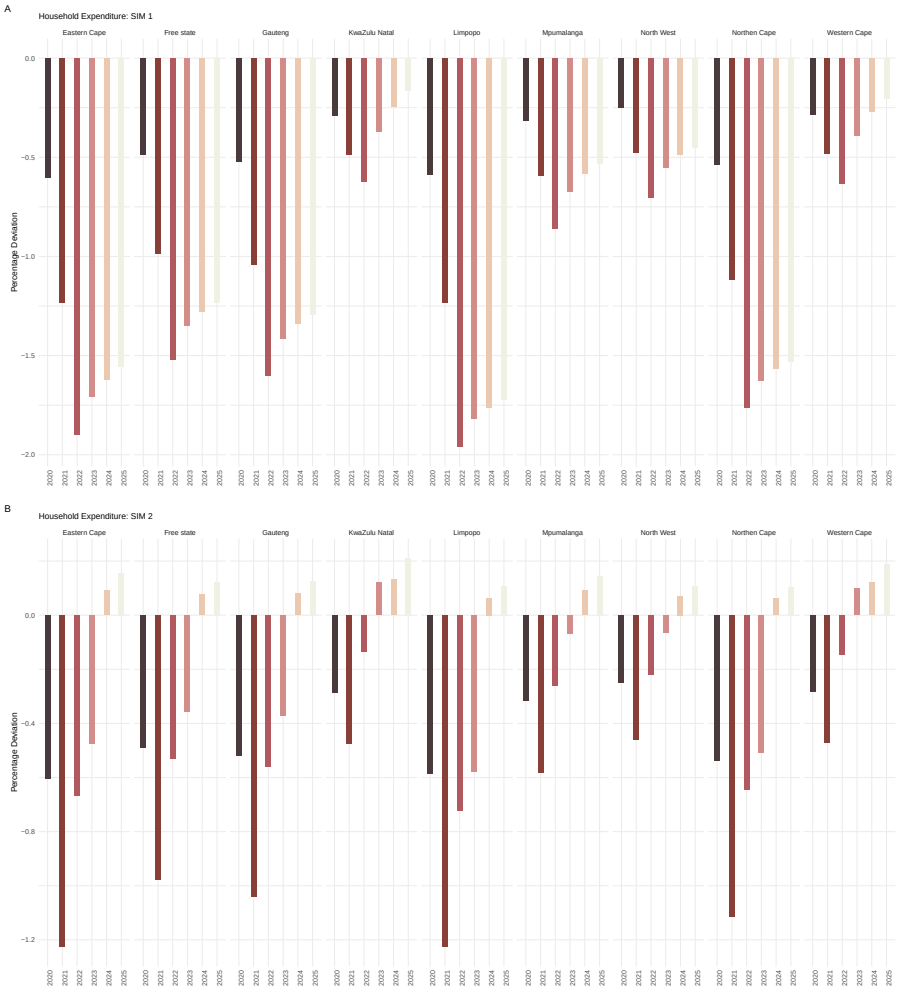
Source: Gauteng Treasury (2020). Note: Numbers in R Million.

5.4 Welfare Impact

In SIM 1 the largest decline in household expenditure in most provinces occurs in the last year of the expenditure reductions. After, household expenditure gradually improves in both simulations. In SIM 2 this occurs in the second year of the reductions, which is also the first year of the government productivity improvements. In particular, in SIM 2 households benefit from improvements in government productivity to a point where household expenditure is positive by the year 2025. Therefore the improvement in household expenditure in SIM 2 is more than in SIM 1 (see Figure 10).

Depending on the importance the government sector to the respective provinces, the impact on households at that level varies. In both simulations the provinces that benefit the most from the improvement in exports, are the least impacted (KwaZulu Natal). In order words these provincial economies are more diversified towards export production. The opposite applies to the less diversified provinces.

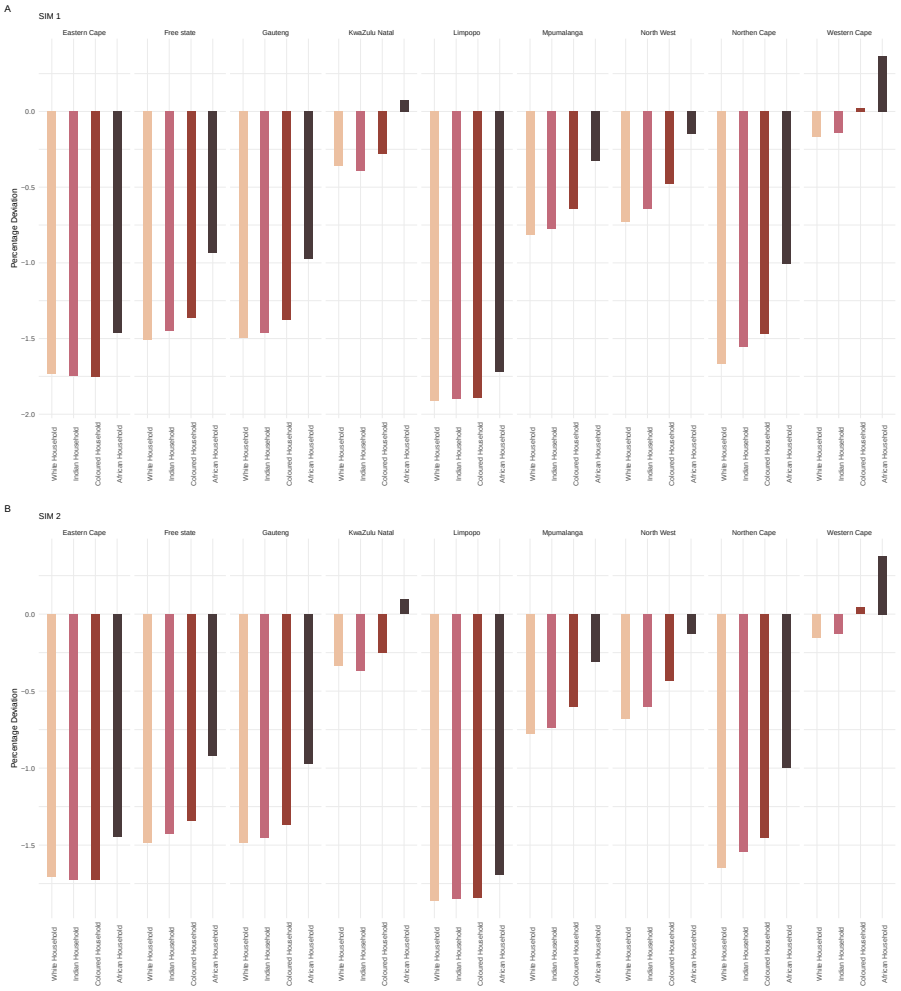
Figure 10: Impact on Household Expenditure



Source: Gauteng Treasury (2020)

Although the conventional wisdom is that since African households are the poorest in terms of income, a decline in government expenditure will have the most impact of these households. However, a more careful analysis reveals that the decline government expenditure is first, a sectoral shock - that is a shock on production - before it is a shock on wages. In this case, the wealthiest households are impacted more than poor households through , for example, a loss of contracts. However, as shown in Figure 11 poorer households benefit the most from improved government productivity since they benefit directly from government services.

Figure 11: Average Impact on Households Expenditure by Household Type



Source: Gauteng Treasury (2020). Note: Household type refers to income levels from poorest to wealthiest.

6 Conclusion

This study continued on Gauteng Provincial Treasury (2019a) who investigated the impact of fiscal austerity on the Gauteng economy. This study extended by focusing on the impact on fiscal austerity on all provinces, and the role of government productivity improvements in mitigating the adverse effects of fiscal austerity.

The macroeconomic results clearly show the importance of productivity improvements in general to economic growth. The further economic activity generated by the improvements, in general, mitigate against the impact of the reductions. In general, the decline in macroeconomic variables was similar, with improvements in GDP, in particular in SIM 2.

Although several sectors benefited from the reduction in government expenditure through improved competitiveness of exports, this was not sufficient to outweigh the negative impact on aggregate economic activity by a contraction in the three government sectors. This underlines the importance of the government sector to the national economy and provincial economies.

The results also showed that fiscal austerity is a double-edged sword. The generated fiscal surplus outweigh the declines in revenue as a result of lower economic activity. But the overall effect on the economy through reduced wage growth, reduced household expenditure growth, reduced aggregate employment must be taken into account. This is also with the additional benefits to exports as local demand slows.

This also study highlights the importance of government productivity for the household. Households in general gain from improved government productivity as they directly benefit from government services. Although the overall welfare effect of the reduction in government expenditure is negative for welfare as wages decline.

Lastly, fiscal austerity in provinces without any additional mitigating policies is a net negative for the economy. Any fiscal austerity policies must, therefore, at least be accompanied with measures to improve productivity in government, but more broadly in the general economy, to counter the contractionary effects on fiscal austerity. However, as seen in SIM 2, these productivity improvements have a cost attached, but also improve both welfare and government finances. The question, therefore, is whether is it austerity that is needed, or aggressive investment and implementation of growth-enhancing initiatives in provinces.

References

Alesina, A., Favero, C., & Giavazzi, F. (2019). *Austerity: When it works and when it doesn't*. Princeton University Press.

Banerjee, R., & Zampolli, F. (2019). What drives the short-run costs of fiscal consolidation? evidence from oecd countries. *Economic Modelling*, *82*, 420–436.

Gauteng Provincial Treasury. (2016). *Investigating the economic growth effects of gauteng municipal capital expenditure: A pooled panel approach.*

Gauteng Provincial Treasury. (2019a). *Assessing the economy wide impact of reductions in provincial baseline budgets: A CGE analysis.* Gauteng Provincial Treasury.

Gauteng Provincial Treasury. (2019b). *Development of the Computable General Equilibrium Model.* Gauteng Provincial Treasury.

Horridge, J., Madden, J. R., & Wittwer, G. (2003). *Using a highly disaggregated multi-regional single-country model to analyse the impacts of the 2002-03 drought on Australia*. Centre of Policy Studies.

Kleis, M., & Moessinger, D. (2016). The long-run effect of fiscal consolidation on economic growth: Evidence from quantitative case studies. *ZEW-Centre for European Economic Research Discussion Paper*(16-047).

McKinsey Center for Government. (2017). *Unlocking government productivity: Unlocking the $3.5 trillion opportunity.* McKinsey and Company.

National Treasury. (2020). *Budget review 2019.* National Treasury.

Wittwer, G., & Horridge, M. (2010). Bringing regional detail to a CGE model using census data. *Spatial Economic Analysis*, *5*(2), 229–255.

Wren-Lewis, S. (2016). A general theory of austerity. *Blavatnik School of Government Studies, Working Paper*, *14*.

Appendices

A Forecasts

Table A.1: Macroeconomic Forecast

Year	Real Household Expenditure	Real Government Expenditure	Real Investment	Real Exports	Real Imports	Real GDP
2016	0.6	2.2	-3.5	0.4	-3.9	0.4
2017	2.1	0.2	1	-0.7	1	1.4
2018	1.8	1.9	-1.4	2.6	3.3	0.8
2019	1.1	2	-0.4	-2.1	0.2	0.3
2020	1.1	1.6	0.2	2.3	1.8	0.9
2021	1.3	-0.6	1.3	2.6	2.5	1.3
2022	1.6	1.2	1.6	2.8	2.8	1.6
2023	1.3	0.7	1	2.6	2.4	1.3
2024	1.4	0.4	1.3	2.7	2.6	1.4
2025	1.4	0.8	1.3	2.7	2.6	1.4

Source: National Treasury (2020)

Table A.2: Population Forecast

Year	Limpopo	North West	Mpumalanga	Gauteng	Free state	Northen Cape	Western Cape	Eastern Cape	KwaZulu Natal
2016	0.97%	1.86%	1.41%	2.31%	0.56%	1.93%	2.10%	1.01%	1.16%
2017	0.97%	1.86%	1.46%	2.28%	0.62%	1.90%	2.04%	1.03%	1.22%
2018	0.93%	1.80%	1.44%	2.21%	0.61%	1.84%	1.98%	1.01%	1.20%
2019	0.90%	1.73%	1.40%	2.12%	0.59%	1.77%	1.88%	0.98%	1.17%
2020	0.83%	1.63%	1.33%	2.01%	0.54%	1.69%	1.80%	0.92%	1.11%
2021	0.83%	1.59%	1.32%	1.96%	0.54%	1.64%	1.73%	0.93%	1.10%
2022	0.82%	1.55%	1.30%	1.90%	0.54%	1.60%	1.67%	0.92%	1.09%
2023	0.81%	1.50%	1.28%	1.84%	0.53%	1.55%	1.61%	0.91%	1.08%
2024	0.82%	1.55%	1.30%	1.90%	0.54%	1.60%	1.67%	0.92%	1.09%
2025	0.81%	1.53%	1.29%	1.88%	0.53%	1.58%	1.65%	0.92%	1.09%

Source: IHS-Markit (2020)

B Expenditure Reductions

Table B.1: Overall Expenditure Reductions (Million, Rand)

Year	2020/21	2021/22	2022/23
Limpopo	3728.85	4390.86	5204.22
North West	2144.9	2526.66	2994.53
Mpumalanga	2479.5	2921.34	3463.11
Gauteng	5719.6	6739.02	7988.05
Free state	1980.5	2333.46	2766.4
Northen Cape	910	1072.08	1270.99
Western Cape	3121.95	3684.18	4371.64
Eastern Cape	4429.2	5220.48	6192.83
KwaZulu Natal	6653.75	7846.74	9310.42

Source: Gauteng Provincial Treasury (2020)

Table B.2: Expenditure Reductions for the Health Sector (Million, Rand)

Year	2020/21	2021/22	2022/23
Limpopo	1242.7	1463.28	1734.32
North West	732.55	862.92	1022.7
Mpumalanga	845.8	996.54	1181.32
Gauteng	1963.7	2313.72	2742.53
Free state	675.1	795.42	943.04
Northen Cape	315.9	372.18	441.21
Western Cape	1078.3	1272.42	1509.83
Eastern Cape	1497.45	1764.96	2093.7
KwaZulu Natal	2263.2	2669.04	3166.87

Source: Gauteng Provincial Treasury (2020)

Table B.3: Expenditure Reductions for the Education Sector (Million, Rand)

Year	2020/21	2021/22	2022/23
Limpopo	1880.25	2214.12	2624.3
North West	1031.05	1214.52	1439.41
Mpumalanga	1196.35	1409.52	1670.9
Gauteng	2729.7	3216.18	3812.27
Free state	955.1	1125.3	1334.06
Northen Cape	423.35	498.72	591.29
Western Cape	1471.9	1737.06	2061.22
Eastern Cape	2174.25	2562.66	3039.96
KwaZulu Natal	3229	3807.9	4518.15

Source: Gauteng Provincial Treasury (2020)

Table B.4: Expenditure Reductions for the Other Sector (Million, Rand)

Year	2020/21	2021/22	2022/23
Limpopo	605.9	713.46	845.6
North West	381.3	449.22	532.42
Mpumalanga	437.35	515.28	610.89
Gauteng	1026.2	1209.12	1433.25
Free state	350.3	412.74	489.3
Northen Cape	170.75	201.18	238.49
Western Cape	571.75	674.7	800.59
Eastern Cape	757.5	892.86	1059.17
KwaZulu Natal	1161.55	1369.8	1625.4

Source: Gauteng Provincial Treasury (2020)

C Sectoral Impact

Table C.1: National Sectoral Impact: SIM 1

Variable	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Furniture	0	0	0	0	0.5939	1.5279	2.7171	3.1232	3.2507	3.2666
Paper Products	0	0	0	0	0.4635	1.1201	1.9069	2.1064	2.1479	2.1234
Agriculture	0	0	0	0	0.072	0.1818	0.3146	0.3643	0.3758	0.3716
Basic Chemicals	0	0	0	0	1.4733	3.4176	5.7487	6.1467	6.2839	6.3031
Basic Iron Steel	0	0	0	0	1.4967	3.4143	5.6717	5.8858	5.8688	5.7528
Beverages and Tobacco Products	0	0	0	0	0.1065	0.3322	0.6268	0.8053	0.8595	0.8627
Coal	0	0	0	0	0.0828	0.1927	0.3207	0.3518	0.3571	0.3502
Computer and Other Businesses	0	0	0	0	0.0864	0.3702	0.7733	1.1289	1.2508	1.2782
Costruction	0	0	0	0	- 0.4455	- 0.9014	- 1.4019	- 1.3445	- 1.3764	- 1.4218
Education	0	0	0	0	2e-04	0.1113	0.2884	0.4853	0.5514	0.5633
Electric Machinary	0	0	0	0	1.0813	2.5936	4.4605	4.8068	4.8636	4.8248
Electricity	0	0	0	0	0.175	0.4717	0.8543	1.0178	1.0825	1.1059
Financial Services	0	0	0	0	0.1067	0.4164	0.8537	1.1884	1.3075	1.3338
Fishing	0	0	0	0	0.049	0.1247	0.2162	0.2559	0.2665	0.2639
Food Products	0	0	0	0	0.1063	0.3184	0.5909	0.7414	0.7719	0.7577
Footwear	0	0	0	0	0.4394	1.0798	1.8653	2.1065	2.1622	2.1512
Forestry	0	0	0	0	0.1555	0.3916	0.677	0.7833	0.8049	0.7899
Glass products	0	0	0	0	0.2883	0.7582	1.3449	1.5748	1.618	1.596
Gold and Metal Ore	0	0	0	0	0.2632	0.5896	0.9544	1.0037	0.9883	0.9469
Government Education	0	0	0	0	- 3.5721	- 7.8945	- 12.8576	- 12.5318	- 12.4754	- 12.3665
Government Health	0	0	0	0	- 3.4872	- 7.7033	- 12.5425	- 12.2165	- 12.1584	- 12.0511
Government Other	0	0	0	0	- 0.4581	- 0.904	- 1.3641	- 1.0561	- 0.9732	- 0.9496
Health and Social Work Services	0	0	0	0	- 0.1056	- 0.1244	- 0.0991	0.1039	0.1751	0.1941
Hotel and Resturants	0	0	0	0	0.7373	1.8082	3.1415	3.5266	3.6927	3.7466
Insurance	0	0	0	0	0.2204	0.6946	1.3384	1.7201	1.8657	1.9032
Leather	0	0	0	0	0.7072	1.6422	2.7708	2.9932	3.1075	3.168
Medical Equipment	0	0	0	0	0.9076	2.2142	3.8671	4.4119	4.7362	4.9482
Metal Machinary	0	0	0	0	1.2358	2.9125	4.9543	5.3213	5.4253	5.4275
Motor Vehicle Shipping Equipment	0	0	0	0	0.9557	2.2951	3.9397	4.2986	4.3784	4.3453
Non-Ferrous Metal	0	0	0	0	2.0461	4.693	7.8268	8.2325	8.3303	8.2824
Non-Metalic Minerals	0	0	0	0	- 0.0159	0.0499	0.1516	0.2524	0.2341	0.1831
Other Chemicals	0	0	0	0	0.4013	1.1003	1.9945	2.3878	2.4741	2.4464
Other Financial Services	0	0	0	0	0.3457	0.9403	1.7088	2.0411	2.1616	2.1818
Other Manufacturing	0	0	0	0	0.2894	0.7065	1.2288	1.4126	1.5328	1.6242
Other Mining	0	0	0	0	0.1479	0.3405	0.5653	0.6138	0.6207	0.6091
Other Services	0	0	0	0	0.1714	0.4753	0.8735	1.0674	1.1515	1.1842
Petrol Refinery	0	0	0	0	0.0492	0.1663	0.3305	0.4464	0.4953	0.5159
Plastic Products	0	0	0	0	0.6768	1.6616	2.868	3.1571	3.2061	3.1609
Post and Telecommunications	0	0	0	0	- 0.0033	0.1499	0.399	0.6951	0.803	0.8355
Print and Publishing	0	0	0	0	0.2008	0.584	1.0846	1.348	1.4293	1.4374
Radio and Television Equipment	0	0	0	0	1.8656	4.522	7.8769	8.8184	9.1885	9.316
Real Estate Services	0	0	0	0	- 0.0187	- 0.042	- 0.0705	- 0.0837	- 0.1011	- 0.1198
Rental Machine and Equiptment	0	0	0	0	0.8484	2.1757	3.9293	4.7536	5.3221	5.7336
Residential Development	0	0	0	0	- 0.1751	- 0.2045	- 0.1564	0.0864	0.1472	0.1419
Rubber Tyres	0	0	0	0	0.8111	1.8959	3.195	3.428	3.4892	3.4789
Structural Metal Fabrication	0	0	0	0	1.5709	3.6755	6.2332	6.5805	6.5838	6.4595
Textiles	0	0	0	0	1.1504	2.6344	4.3841	4.5715	4.5567	4.4594
Trade	0	0	0	0	0.3511	0.9192	1.642	1.8914	1.9712	1.9799
Transport	0	0	0	0	0.2752	0.7239	1.2935	1.5146	1.5929	1.6109
Water Distribution	0	0	0	0	0.045	0.1498	0.2887	0.387	0.4175	0.4229
Wear Apparel	0	0	0	0	1.534	3.4719	5.767	5.9772	5.9071	5.7466
Wood Products	0	0	0	0	0.6212	1.4705	2.4824	2.6873	2.7245	2.6925

Source: Gauteng Provincial Treasury (2020)

Table C.2: National Sectoral Impact: SIM 2

Variable	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Furniture	0	0	0	0	0.5939	1.5326	2.7231	3.1272	3.254	3.2698
Paper Products	0	0	0	0	0.4635	1.1212	1.9077	2.1059	2.1468	2.1221
Agriculture	0	0	0	0	0.072	0.1825	0.3156	0.365	0.3764	0.3722
Basic Chemicals	0	0	0	0	1.4733	3.4206	5.7517	6.1475	6.2837	6.3027
Basic Iron Steel	0	0	0	0	1.4967	3.4173	5.675	5.887	5.8692	5.7529
Beverages and Tobacco Products	0	0	0	0	0.1065	0.3343	0.6297	0.8074	0.8613	0.8646
Coal	0	0	0	0	0.0828	0.1929	0.321	0.3519	0.3571	0.3501
Computer and Other Businesses	0	0	0	0	0.0864	0.3711	0.7733	1.127	1.2481	1.2749
Costruction	0	0	0	0	-	-	-	-	-	-
					0.4455	0.8964	1.3943	1.3374	1.3693	1.4144
Education	0	0	0	0	2e-04	0.1137	0.2917	0.4879	0.5539	0.5658
Electric Machinary	0	0	0	0	1.0813	2.5991	4.4674	4.8111	4.8669	4.8278
Electricity	0	0	0	0	0.175	0.4734	0.8564	1.0191	1.0835	1.1068
Financial Services	0	0	0	0	0.1067	0.4195	0.8578	1.1912	1.31	1.3362
Fishing	0	0	0	0	0.049	0.125	0.2166	0.2561	0.2665	0.2639
Food Products	0	0	0	0	0.1063	0.3206	0.5939	0.7435	0.7738	0.7597
Footwear	0	0	0	0	0.4394	1.0821	1.8679	2.1077	2.1628	2.1515
Forestry	0	0	0	0	0.1555	0.3926	0.6782	0.784	0.8053	0.7902
Glass products	0	0	0	0	0.2883	0.7605	1.3473	1.5756	1.6182	1.5959
Gold and Metal Ore	0	0	0	0	0.2632	0.5905	0.9554	1.0043	0.9886	0.9471
Government Education	0	0	0	0	-	-	-	-	-	-
					3.5721	7.4253	12.0593	11.6435	11.4987	11.3003
Government Health	0	0	0	0	-	-	-	-	-	-
					3.4872	7.2339	11.7428	11.3267	11.18	10.983
Government Other	0	0	0	0	-	-	-	-	0.1288	0.2529
					0.4581	0.4013	0.4644	0.0547		
Health and Social Work Services	0	0	0	0	-	-	-	0.1339	0.2082	0.2305
					0.1056	0.1089	0.0717			
Hotel and Resturants	0	0	0	0	0.7373	1.8106	3.1444	3.5281	3.6937	3.7475
Insurance	0	0	0	0	0.2204	0.6988	1.3443	1.7246	1.87	1.9075
Leather	0	0	0	0	0.7072	1.6427	2.7707	2.9921	3.1058	3.1658
Medical Equipment	0	0	0	0	0.9076	2.2135	3.8644	4.407	4.73	4.9411
Metal Machinary	0	0	0	0	1.2358	2.9138	4.9541	5.3182	5.4209	5.4223
Motor Vehicle Shipping Equipment	0	0	0	0	0.9557	2.2977	3.9422	4.2988	4.3776	4.3442
Non-Ferrous Metal	0	0	0	0	2.0461	4.6962	7.8298	8.2325	8.3291	8.2807
Non-Metalic Minerals	0	0	0	0	-	0.0534	0.1564	0.2563	0.2378	0.1869
					0.0159					
Other Chemicals	0	0	0	0	0.4013	1.1029	1.9965	2.3867	2.4715	2.4429
Other Financial Services	0	0	0	0	0.3457	0.9431	1.7122	2.0433	2.1633	2.1834
Other Manufacturing	0	0	0	0	0.2894	0.7075	1.2299	1.4132	1.5332	1.6245
Other Mining	0	0	0	0	0.1479	0.3409	0.5658	0.6139	0.6207	0.609
Other Services	0	0	0	0	0.1714	0.4771	0.8761	1.0694	1.1535	1.1864
Petrol Refinery	0	0	0	0	0.0492	0.1672	0.3317	0.4472	0.4958	0.5164
Plastic Products	0	0	0	0	0.6768	1.6655	2.8727	3.1597	3.2079	3.1624
Post and Telecommunications	0	0	0	0	-	0.1523	0.4019	0.6966	0.804	0.8363
					0.0033					
Print and Publishing	0	0	0	0	0.2008	0.5855	1.086	1.348	1.4287	1.4366
Radio and Television Equipment	0	0	0	0	1.8656	4.5255	7.879	8.8158	9.1837	9.31
Real Estate Services	0	0	0	0	-	-	-	-0.08	-	-
					0.0187	0.041	0.068		0.0963	0.114
Rental Machine and Equiptment	0	0	0	0	0.8484	2.1759	3.9286	4.7515	5.3194	5.7306
Residential Development	0	0	0	0	-	-	-	-	-	-
					0.1751	0.2767	0.2884	0.0687	0.0291	0.0559
Rubber Tyres	0	0	0	0	0.8111	1.8976	3.1963	3.4276	3.488	3.4773
Structural Metal Fabrication	0	0	0	0	1.5709	3.6813	6.2403	6.5846	6.5867	6.462
Textiles	0	0	0	0	1.1504	2.6357	4.3846	4.57	4.5542	4.4564
Trade	0	0	0	0	0.3511	0.9215	1.6446	1.8926	1.9718	1.9802
Transport	0	0	0	0	0.2752	0.7265	1.297	1.517	1.595	1.6129
Water Distribution	0	0	0	0	0.045	0.1508	0.2899	0.3875	0.4177	0.423
Wear Apparel	0	0	0	0	1.534	3.4744	5.7688	5.9762	5.9046	5.7434
Wood Products	0	0	0	0	0.6212	1.4723	2.4841	2.6875	2.724	2.6916

Source: Gauteng Provincial Treasury (2020)

Table C.3: Provincial Sectoral Impact: SIM 1

Variable	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Furniture: Eastern Cape	0	0	0	0	0.619	1.5959	2.8498	3.2402	3.361	3.3704
Furniture: Free State	0	0	0	0	0.1689	0.5711	1.1284	1.4848	1.588	1.5982
Furniture: Gauteng	0	0	0	0	0.174	0.5583	1.0795	1.4022	1.4856	1.4823
Furniture: KwaZulu	0	0	0	0	1.2538	3.0011	5.1328	5.5867	5.7162	5.7034
Furniture: Limpopo	0	0	0	0	0.1936	0.6519	1.2873	1.6922	1.8121	1.8232
Furniture: Mpumalanga	0	0	0	0	0.0049	0.2193	0.5561	0.9493	1.0765	1.1035
Furniture: North West	0	0	0	0	0.1561	0.573	1.1626	1.5891	1.731	1.7636
Furniture: Northern Cape	0	0	0	0	0.602	1.5806	2.849	3.2864	3.4243	3.4408
Furniture: Western Cape	0	0	0	0	1.0205	2.4828	4.291	4.7386	4.8698	4.87
Paper Products: Eastern Cape	0	0	0	0	0.5986	1.4212	2.402	2.5835	2.6093	2.5649
Paper Products: Free State	0	0	0	0	0.3795	0.9454	1.634	1.8187	1.8425	1.8004
Paper Products: Gauteng	0	0	0	0	0.3165	0.7902	1.3614	1.5205	1.531	1.4826
Paper Products: KwaZulu	0	0	0	0	0.643	1.5129	2.5432	2.7688	2.8305	2.8202
Paper Products: Limpopo	0	0	0	0	0.4064	1.0325	1.8039	2.0216	2.057	2.0144
Paper Products: Mpumalanga	0	0	0	0	0.2688	0.7099	1.2589	1.4724	1.5165	1.4939
Paper Products: North West	0	0	0	0	0.2398	0.6604	1.1917	1.4204	1.4668	1.4407
Paper Products: Northern Cape	0	0	0	0	0.4564	1.1321	1.9583	2.1704	2.2075	2.1705
Paper Products: Western Cape	0	0	0	0	0.3717	0.9126	1.5648	1.7655	1.8116	1.7966
Agriculture: Eastern Cape	0	0	0	0	0.0908	0.2193	0.3715	0.416	0.4237	0.4162
Agriculture: Free State	0	0	0	0	0.0727	0.1843	0.3196	0.3684	0.3785	0.373
Agriculture: Gauteng	0	0	0	0	0.0875	0.2131	0.3626	0.4068	0.414	0.4059
Agriculture: KwaZulu	0	0	0	0	0.0694	0.1751	0.3033	0.3547	0.3686	0.367
Agriculture: Limpopo	0	0	0	0	0.0648	0.17	0.2994	0.35	0.3613	0.3566
Agriculture: Mpumalanga	0	0	0	0	0.0656	0.1686	0.294	0.3435	0.3547	0.3502
Agriculture: North West	0	0	0	0	0.0585	0.1571	0.2796	0.334	0.3475	0.3445
Agriculture: Northern Cape	0	0	0	0	0.0792	0.1991	0.3442	0.3948	0.4052	0.3993
Agriculture: Western Cape	0	0	0	0	0.0722	0.18	0.3095	0.3585	0.3704	0.367
Basic Chemicals: Eastern Cape	0	0	0	0	1.6617	3.8164	6.3825	6.7241	6.8247	6.8095
Basic Chemicals: Free State	0	0	0	0	1.5868	3.699	6.2482	6.6843	6.8314	6.8475
Basic Chemicals: Gauteng	0	0	0	0	1.5373	3.5699	6.0211	6.4055	6.5257	6.5272
Basic Chemicals: KwaZulu	0	0	0	0	1.3476	3.1025	5.178	5.5519	5.7008	5.7443
Basic Chemicals: Limpopo	0	0	0	0	1.6463	3.8734	6.5928	7.0655	7.2292	7.246
Basic Chemicals: Mpumalanga	0	0	0	0	1.6645	3.9081	6.6279	7.1779	7.38	7.4295
Basic Chemicals: North West	0	0	0	0	1.3511	3.2225	5.5198	6.0249	6.2121	6.2586
Basic Chemicals: Northern Cape	0	0	0	0	1.3041	3.0598	5.1861	5.5557	5.664	5.6564
Basic Chemicals: Western Cape	0	0	0	0	1.2734	2.9441	4.9249	5.2943	5.4124	5.4242
Basic Iron Steel: Eastern Cape	0	0	0	0	1.7374	3.919	6.457	6.6233	6.5701	6.416
Basic Iron Steel: Free State	0	0	0	0	1.4719	3.3816	5.6449	5.8819	5.8726	5.759
Basic Iron Steel: Gauteng	0	0	0	0	1.5836	3.6148	6.018	6.2241	6.1987	6.0737
Basic Iron Steel: KwaZulu	0	0	0	0	1.3927	3.154	5.1982	5.4116	5.4126	5.32
Basic Iron Steel: Limpopo	0	0	0	0	1.6092	3.7098	6.2084	6.457	6.4427	6.3115
Basic Iron Steel: Mpumalanga	0	0	0	0	1.3353	3.0697	5.1145	5.354	5.3465	5.2381
Basic Iron Steel: North West	0	0	0	0	1.3165	3.0886	5.2235	5.5454	5.5843	5.5059
Basic Iron Steel: Northern Cape	0	0	0	0	1.4934	3.4344	5.7347	5.976	5.9647	5.8454
Basic Iron Steel: Western Cape	0	0	0	0	1.4119	3.1864	5.2375	5.4283	5.4051	5.2908
Beverages and Tobacco Products: Eastern Cape	0	0	0	0	0.2161	0.5732	1.0168	1.1928	1.2452	1.2432
Beverages and Tobacco Products: Free State	0	0	0	0	0.1301	0.3956	0.7443	0.9335	0.99	0.9915
Beverages and Tobacco Products: Gauteng	0	0	0	0	0.0988	0.3131	0.5954	0.7588	0.8016	0.7952
Beverages and Tobacco Products: KwaZulu	0	0	0	0	0.1679	0.4537	0.8067	0.9877	1.0506	1.0644
Beverages and Tobacco Products: Limpopo	0	0	0	0	0.1063	0.3628	0.7116	0.9311	1.0024	1.0101
Beverages and Tobacco Products: Mpumalanga	0	0	0	0	0.0254	0.172	0.388	0.5999	0.674	0.6919
Beverages and Tobacco Products: North West	0	0	0	0	0.117	0.3935	0.7715	1.0207	1.1149	1.1433
Beverages and Tobacco Products: Northern Cape	0	0	0	0	0.177	0.5123	0.9494	1.1607	1.229	1.236
Beverages and Tobacco Products: Western Cape	0	0	0	0	0.0643	0.2339	0.4604	0.6418	0.701	0.7121
Coal: Eastern Cape	0	0	0	0	0.096	0.2178	0.358	0.3847	0.3876	0.3789
Coal: Free State	0	0	0	0	0.0895	0.207	0.3438	0.375	0.3797	0.372
Coal: Gauteng	0	0	0	0	0.0982	0.2242	0.3705	0.4005	0.4048	0.3966
Coal: KwaZulu	0	0	0	0	0.0669	0.1534	0.2526	0.2746	0.2768	0.27
Coal: Limpopo	0	0	0	0	0.0951	0.2222	0.3717	0.4082	0.415	0.4074
Coal: Mpumalanga	0	0	0	0	0.0822	0.1913	0.3184	0.3496	0.3549	0.3481
Coal: North West	0	0	0	0	0.078	0.1848	0.311	0.3452	0.3523	0.3467
Coal: Northern Cape	0	0	0	0	0.089	0.2066	0.3437	0.3748	0.3798	0.3724
Coal: Western Cape	0	0	0	0	0.072	0.1643	0.2694	0.2911	0.2926	0.2846
Computer and Other Businesses: Eastern Cape	0	0	0	0	0.1566	0.5221	1.0141	1.3566	1.4685	1.4841
Computer and Other Businesses: Free State	0	0	0	0	0.0731	0.3471	0.7437	1.1014	1.2221	1.2473
Computer and Other Businesses: Gauteng	0	0	0	0	0.1668	0.5414	1.0476	1.3854	1.494	1.509
Computer and Other Businesses: KwaZulu	0	0	0	0	0.0083	0.1914	0.4717	0.8359	0.9703	1.0133
Computer and Other Businesses: Limpopo	0	0	0	0	0.1493	0.5421	1.0904	1.4759	1.6079	1.6323
Computer and Other Businesses: Mpumalanga	0	0	0	0	-0.0114	0.1589	0.4336	0.7959	0.9198	0.9501
Computer and Other Businesses: North West	0	0	0	0	-0.0132	0.1815	0.4997	0.9058	1.0528	1.0963
Computer and Other Businesses: Northern Cape	0	0	0	0	0.1697	0.5749	1.1339	1.5106	1.6433	1.6734
Computer and Other Businesses: Western Cape	0	0	0	0	-0.0272	0.1083	0.334	0.691	0.8219	0.8643
Costruction: Eastern Cape	0	0	0	0	-0.4304	-0.8851	-1.3848	-1.3417	-1.3803	-1.4289
Costruction: Free State	0	0	0	0	-0.3549	-0.7037	-1.0869	-1.0557	-1.1156	-1.189
Costruction: Gauteng	0	0	0	0	-0.5638	-1.1622	-1.8269	-1.7657	-1.801	-1.8518
Costruction: KwaZulu	0	0	0	0	-0.3811	-0.7469	-1.1238	-1.0249	-1.0146	-1.0232
Costruction: Limpopo	0	0	0	0	-0.3403	-0.6881	-1.0984	-1.1304	-1.2394	-1.3467
Costruction: Mpumalanga	0	0	0	0	-0.3035	-0.5879	-0.9044	-0.8672	-0.9224	-0.9906
Costruction: North West	0	0	0	0	-0.3256	-0.6352	-0.9969	-1.0092	-1.1143	-1.2238
Costruction: Northern Cape	0	0	0	0	-0.3185	-0.6212	-0.9568	-0.9269	-0.9938	-1.0737
Costruction: Western Cape	0	0	0	0	-0.432	-0.8726	-1.3545	-1.2863	-1.3008	-1.3284
Education: Eastern Cape	0	0	0	0	0.0809	0.2935	0.5896	0.7939	0.8687	0.8851

Source: Gauteng Provincial Treasury (2020)

Table C.4: Provincial Sectoral Impact (Continued): SIM 1

Variable	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Education: Free State	0	0	0	0	0.029	0.1784	0.403	0.6016	0.6678	0.6786
Education: Gauteng	0	0	0	0	0.0587	0.2412	0.5036	0.7024	0.7724	0.7868
Education: KwaZulu	0	0	0	0	- 0.0737	- 0.0665	- 0.0206	0.1535	0.2052	0.2094
Education: Limpopo	0	0	0	0	0.0867	0.3263	0.6678	0.8976	0.9846	1.0069
Education: Mpumalanga	0	0	0	0	- 0.0265	0.0525	0.1917	0.3865	0.4462	0.4522
Education: North West	0	0	0	0	- 0.0303	0.0597	0.2213	0.4433	0.5196	0.5372
Education: Northern Cape	0	0	0	0	0.0465	0.2259	0.4911	0.7057	0.7832	0.8019
Education: Western Cape	0	0	0	0	- 0.1233	- 0.1771	- 0.2016	- 0.0262	0.0248	0.0298
Electric Machinary: Eastern Cape	0	0	0	0	1.2503	2.9997	5.1879	5.6011	5.7024	5.6859
Electric Machinary: Free State	0	0	0	0	1.0358	2.4873	4.2604	4.5551	4.5621	4.4842
Electric Machinary: Gauteng	0	0	0	0	0.8899	2.1393	3.6576	3.9115	3.9157	3.8426
Electric Machinary: KwaZulu	0	0	0	0	1.5504	3.678	6.3087	6.7903	6.9023	6.8744
Electric Machinary: Limpopo	0	0	0	0	1.2184	2.892	4.9088	5.1353	5.0802	4.9492
Electric Machinary: Mpumalanga	0	0	0	0	0.8918	2.1342	3.6152	3.8171	3.7642	3.6517
Electric Machinary: North West	0	0	0	0	1.0459	2.5185	4.305	4.5828	4.5685	4.4768
Electric Machinary: Northern Cape	0	0	0	0	1.3765	3.2848	5.6403	6.0235	6.0664	5.9982
Electric Machinary: Western Cape	0	0	0	0	1.2195	2.9273	5.0615	5.5261	5.6464	5.6431
Electricity: Eastern Cape	0	0	0	0	0.1007	0.2785	0.5058	0.5952	0.6129	0.604
Electricity: Free State	0	0	0	0	0.2204	0.5775	1.031	1.201	1.2652	1.285
Electricity: Gauteng	0	0	0	0	0.1553	0.4212	0.7629	0.9018	0.9473	0.9546
Electricity: KwaZulu	0	0	0	0	0.2397	0.6364	1.1535	1.3952	1.5253	1.6035
Electricity: Limpopo	0	0	0	0	0.1909	0.5156	0.9307	1.0897	1.1369	1.1377
Electricity: Mpumalanga	0	0	0	0	0.2399	0.6276	1.1202	1.3051	1.3747	1.3966
Electricity: North West	0	0	0	0	0.1842	0.4783	0.8479	0.9903	1.04	1.0502
Electricity: Northern Cape	0	0	0	0	0.2011	0.5462	0.995	1.1811	1.2572	1.2865
Electricity: Western Cape	0	0	0	0	0.1115	0.3273	0.614	0.7749	0.8419	0.8715
Financial Services: Eastern Cape	0	0	0	0	0.1573	0.5294	1.0366	1.363	1.4745	1.4907
Financial Services: Free State	0	0	0	0	0.1356	0.4895	0.9844	1.3299	1.4531	1.4795
Financial Services: Gauteng	0	0	0	0	0.1406	0.4905	0.9751	1.303	1.4182	1.4407
Financial Services: KwaZulu	0	0	0	0	0.0233	0.2183	0.5099	0.828	0.9356	0.9559
Financial Services: Limpopo	0	0	0	0	0.2048	0.6664	1.3005	1.6789	1.8226	1.8589
Financial Services: Mpumalanga	0	0	0	0	0.0796	0.3666	0.7832	1.1384	1.2653	1.2954
Financial Services: North West	0	0	0	0	0.0846	0.3986	0.8589	1.2546	1.4048	1.4496
Financial Services: Northern Cape	0	0	0	0	0.1601	0.5461	1.0805	1.4275	1.5533	1.5812
Financial Services: Western Cape	0	0	0	0	0.0192	0.2165	0.5192	0.8578	0.9838	1.0215
Fishing: Eastern Cape	0	0	0	0	0.0682	0.1668	0.2845	0.3246	0.3337	0.3286
Fishing: Free State	0	0	0	0	0.0612	0.1531	0.2643	0.306	0.3162	0.3121
Fishing: Gauteng	0	0	0	0	0.0698	0.1705	0.291	0.331	0.34	0.3346
Fishing: KwaZulu	0	0	0	0	0.043	0.112	0.1964	0.2367	0.2482	0.2466
Fishing: Limpopo	0	0	0	0	0.0671	0.168	0.2904	0.3348	0.3455	0.3408
Fishing: Mpumalanga	0	0	0	0	0.0525	0.1351	0.2359	0.279	0.2904	0.2875
Fishing: North West	0	0	0	0	0.0526	0.1371	0.2412	0.2869	0.2993	0.2967
Fishing: Northern Cape	0	0	0	0	0.062	0.1562	0.2705	0.3141	0.3248	0.3206
Fishing: Western Cape	0	0	0	0	0.0468	0.1196	0.2078	0.2473	0.2579	0.2556
Food Products: Eastern Cape	0	0	0	0	0.0438	0.169	0.3331	0.4495	0.4556	0.4234
Food Products: Free State	0	0	0	0	0.0792	0.261	0.5001	0.6437	0.6667	0.6455
Food Products: Gauteng	0	0	0	0	0.0483	0.1762	0.3405	0.4506	0.4493	0.4096
Food Products: KwaZulu	0	0	0	0	0.2311	0.6027	1.0675	1.2547	1.3173	1.3288
Food Products: Limpopo	0	0	0	0	0.0377	0.1715	0.3503	0.4897	0.4984	0.4599
Food Products: Mpumalanga	0	0	0	0	- 0.0498	- 0.0247	0.0305	0.1812	0.2099	0.1958
Food Products: North West	0	0	0	0	- 0.0179	0.0547	0.1696	0.336	0.3715	0.3599
Food Products: Northern Cape	0	0	0	0	0.007	0.0923	0.2098	0.3302	0.3304	0.2897
Food Products: Western Cape	0	0	0	0	0.1715	0.4703	0.8495	1.0283	1.08	1.0825
Footwear: Eastern Cape	0	0	0	0	0.451	1.1081	1.9195	2.1557	2.2108	2.2007
Footwear: Free State	0	0	0	0	0.4516	1.0921	1.8465	2.0218	2.0183	1.9463
Footwear: Gauteng	0	0	0	0	0.5362	1.2461	2.0622	2.1778	2.1402	2.0438
Footwear: KwaZulu	0	0	0	0	0.3611	0.9101	1.5922	1.8462	1.9165	1.9213
Footwear: Limpopo	0	0	0	0	0.5556	1.3627	2.3323	2.5553	2.5629	2.484
Footwear: Mpumalanga	0	0	0	0	0.2735	0.7069	1.2218	1.4193	1.4284	1.369
Footwear: North West	0	0	0	0	0.271	0.74	1.3144	1.5566	1.5748	1.5108
Footwear: Northern Cape	0	0	0	0	0.3113	0.7647	1.2692	1.3628	1.268	1.1061
Footwear: Western Cape	0	0	0	0	0.5962	1.4443	2.4912	2.7746	2.8468	2.8431
Forestry: Eastern Cape	0	0	0	0	0.1752	0.4327	0.7413	0.843	0.8601	0.8408
Forestry: Free State	0	0	0	0	0.1479	0.377	0.6549	0.7562	0.7759	0.7603
Forestry: Gauteng	0	0	0	0	0.1829	0.4469	0.7606	0.8584	0.8707	0.8467
Forestry: KwaZulu	0	0	0	0	0.1584	0.3966	0.6842	0.7941	0.8185	0.8058
Forestry: Limpopo	0	0	0	0	0.1434	0.371	0.6494	0.7531	0.7743	0.7598
Forestry: Mpumalanga	0	0	0	0	0.149	0.3802	0.6603	0.7657	0.7848	0.7675
Forestry: North West	0	0	0	0	0.1454	0.3757	0.6565	0.7653	0.7864	0.7702
Forestry: Northern Cape	0	0	0	0	0.1522	0.3867	0.6706	0.773	0.7926	0.7765
Forestry: Western Cape	0	0	0	0	0.1355	0.347	0.6041	0.7075	0.7321	0.722
Glass products: Eastern Cape	0	0	0	0	0.5221	1.2838	2.2148	2.4408	2.473	2.4308
Glass products: Free State	0	0	0	0	0.0689	0.2866	0.5903	0.8332	0.8889	0.883
Glass products: Gauteng	0	0	0	0	0.2764	0.7197	1.2692	1.4687	1.4949	1.4612
Glass products: KwaZulu	0	0	0	0	0.3703	0.9488	1.6661	1.9445	2.0184	2.0191
Glass products: Limpopo	0	0	0	0	0.3326	0.9309	1.7061	2.0258	2.1003	2.0817
Glass products: Mpumalanga	0	0	0	0	0.0305	0.2259	0.5119	0.8003	0.8765	0.8802
Glass products: North West	0	0	0	0	0.0608	0.3462	0.7659	1.1369	1.2507	1.2721
Glass products: Northern Cape	0	0	0	0	0.2978	0.8222	1.4974	1.7806	1.8471	1.8343
Glass products: Western Cape	0	0	0	0	0.2186	0.6013	1.0849	1.3264	1.3787	1.3678

Source: Gauteng Provincial Treasury (2020)

Table C.5: Provincial Sectoral Impact: SIM 2

Variable	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Furniture: Eastern Cape	0	0	0	0	0.619	1.5991	2.8531	3.241	3.3609	3.3698
Furniture: Free State	0	0	0	0	0.1689	0.5759	1.1346	1.4893	1.5921	1.6023
Furniture: Gauteng	0	0	0	0	0.174	0.5643	1.0881	1.4095	1.4926	1.4896
Furniture: KwaZulu	0	0	0	0	1.2538	3.004	5.1351	5.5862	5.7145	5.7011
Furniture: Limpopo	0	0	0	0	0.1936	0.6583	1.2965	1.6999	1.8195	1.8311
Furniture: Mpumalanga	0	0	0	0	0.0049	0.2263	0.5666	0.9587	1.086	1.1136
Furniture: North West	0	0	0	0	0.1561	0.5805	1.1737	1.599	1.741	1.7742
Furniture: Northern Cape	0	0	0	0	0.602	1.5838	2.8522	3.2871	3.4239	3.4399
Furniture: Western Cape	0	0	0	0	1.0205	2.4864	4.2948	4.7398	4.8699	4.8696
Paper Products: Eastern Cape	0	0	0	0	0.5986	1.4207	2.3998	2.5797	2.6045	2.5596
Paper Products: Free State	0	0	0	0	0.3795	0.9457	1.6334	1.8166	1.8398	1.7973
Paper Products: Gauteng	0	0	0	0	0.3165	0.7928	1.3648	1.5228	1.5331	1.4847
Paper Products: KwaZulu	0	0	0	0	0.643	1.513	2.5423	2.7664	2.8272	2.8165
Paper Products: Limpopo	0	0	0	0	0.4064	1.0342	1.8055	2.0217	2.0565	2.0137
Paper Products: Mpumalanga	0	0	0	0	0.2688	0.7113	1.2602	1.4723	1.516	1.4933
Paper Products: North West	0	0	0	0	0.2398	0.6632	1.1955	1.4231	1.4691	1.4431
Paper Products: Northern Cape	0	0	0	0	0.4564	1.132	1.9566	2.1669	2.2032	2.1656
Paper Products: Western Cape	0	0	0	0	0.3717	0.9136	1.5654	1.7648	1.8105	1.7952
Agriculture: Eastern Cape	0	0	0	0	0.0908	0.2198	0.3721	0.4164	0.424	0.4164
Agriculture: Free State	0	0	0	0	0.0727	0.1849	0.3204	0.3689	0.379	0.3734
Agriculture: Gauteng	0	0	0	0	0.0875	0.2141	0.3641	0.4082	0.4154	0.4073
Agriculture: KwaZulu	0	0	0	0	0.0694	0.1757	0.3041	0.3552	0.3691	0.3674
Agriculture: Limpopo	0	0	0	0	0.0648	0.1709	0.3007	0.3511	0.3623	0.3576
Agriculture: Mpumalanga	0	0	0	0	0.0656	0.1694	0.2951	0.3445	0.3555	0.351
Agriculture: North West	0	0	0	0	0.0585	0.1581	0.281	0.3353	0.3488	0.3458
Agriculture: Northern Cape	0	0	0	0	0.0792	0.1996	0.3448	0.3951	0.4054	0.3995
Agriculture: Western Cape	0	0	0	0	0.0722	0.1807	0.3103	0.3592	0.371	0.3675
Basic Chemicals: Eastern Cape	0	0	0	0	1.6617	3.816	6.3795	6.7183	6.8173	6.8011
Basic Chemicals: Free State	0	0	0	0	1.5868	3.6999	6.2473	6.6803	6.8259	6.8411
Basic Chemicals: Gauteng	0	0	0	0	1.5373	3.5757	6.0292	6.4118	6.5317	6.5334
Basic Chemicals: KwaZulu	0	0	0	0	1.3476	3.1031	5.1772	5.5489	5.6967	5.7395
Basic Chemicals: Limpopo	0	0	0	0	1.6463	3.8765	6.5957	7.0656	7.2281	7.2443
Basic Chemicals: Mpumalanga	0	0	0	0	1.6645	3.9108	6.6298	7.1766	7.3772	7.4261
Basic Chemicals: North West	0	0	0	0	1.3511	3.2273	5.5258	6.0284	6.2147	6.2611
Basic Chemicals: Northern Cape	0	0	0	0	1.3041	3.06	5.1841	5.5508	5.6576	5.6491
Basic Chemicals: Western Cape	0	0	0	0	1.2734	2.9453	4.925	5.2918	5.4087	5.4198
Basic Iron Steel: Eastern Cape	0	0	0	0	1.7374	3.9184	6.454	6.6179	6.5634	6.4084
Basic Iron Steel: Free State	0	0	0	0	1.4719	3.3823	5.644	5.8782	5.8677	5.7534
Basic Iron Steel: Gauteng	0	0	0	0	1.5836	3.6197	6.0245	6.2288	6.2029	6.0778
Basic Iron Steel: KwaZulu	0	0	0	0	1.3927	3.1544	5.1971	5.4083	5.4083	5.3151
Basic Iron Steel: Limpopo	0	0	0	0	1.6092	3.7122	6.2103	6.4563	6.4409	6.3092
Basic Iron Steel: Mpumalanga	0	0	0	0	1.3353	3.0715	5.1155	5.3526	5.3442	5.2352
Basic Iron Steel: North West	0	0	0	0	1.3165	3.0926	5.2282	5.5476	5.5856	5.5069
Basic Iron Steel: Northern Cape	0	0	0	0	1.4934	3.4345	5.7326	5.971	5.9584	5.8382
Basic Iron Steel: Western Cape	0	0	0	0	1.4119	3.1869	5.2366	5.4252	5.4011	5.2862
Beverages and Tobacco Products: Eastern Cape	0	0	0	0	0.2161	0.5739	1.0171	1.192	1.2439	1.2416
Beverages and Tobacco Products: Free State	0	0	0	0	0.1301	0.3969	0.7456	0.9337	0.9899	0.9912
Beverages and Tobacco Products: Gauteng	0	0	0	0	0.0988	0.3162	0.5999	0.7627	0.8055	0.7993
Beverages and Tobacco Products: KwaZulu	0	0	0	0	0.1679	0.4544	0.8069	0.9869	1.0492	1.0628
Beverages and Tobacco Products: Limpopo	0	0	0	0	0.1063	0.3652	0.7147	0.9333	1.0043	1.0121
Beverages and Tobacco Products: Mpumalanga	0	0	0	0	0.0254	0.1741	0.3907	0.6018	0.6756	0.6936
Beverages and Tobacco Products: North West	0	0	0	0	0.117	0.3969	0.7765	1.0249	1.1191	1.1478
Beverages and Tobacco Products: Northern Cape	0	0	0	0	0.177	0.513	0.9494	1.1595	1.2271	1.2338
Beverages and Tobacco Products: Western Cape	0	0	0	0	0.0643	0.2357	0.4627	0.6432	0.7021	0.7133
Coal: Eastern Cape	0	0	0	0	0.096	0.2179	0.3578	0.3844	0.3872	0.3784
Coal: Free State	0	0	0	0	0.0895	0.2071	0.3439	0.3748	0.3795	0.3717
Coal: Gauteng	0	0	0	0	0.0982	0.2246	0.3711	0.401	0.4052	0.397
Coal: KwaZulu	0	0	0	0	0.0669	0.1535	0.2527	0.2745	0.2766	0.2697
Coal: Limpopo	0	0	0	0	0.0951	0.2225	0.372	0.4084	0.4151	0.4074
Coal: Mpumalanga	0	0	0	0	0.0822	0.1915	0.3187	0.3497	0.3549	0.348
Coal: North West	0	0	0	0	0.078	0.1852	0.3116	0.3457	0.3527	0.347
Coal: Northern Cape	0	0	0	0	0.089	0.2066	0.3436	0.3745	0.3794	0.3719
Coal: Western Cape	0	0	0	0	0.072	0.1645	0.2695	0.2911	0.2924	0.2843
Computer and Other Businesses: Eastern Cape	0	0	0	0	0.1566	0.5198	1.0086	1.3485	1.4589	1.4734
Computer and Other Businesses: Free State	0	0	0	0	0.0731	0.3449	0.7381	1.0932	1.2124	1.2365
Computer and Other Businesses: Gauteng	0	0	0	0	0.1668	0.5437	1.0502	1.3864	1.4944	1.5092
Computer and Other Businesses: KwaZulu	0	0	0	0	0.0083	0.1909	0.4694	0.8315	0.9648	1.0071
Computer and Other Businesses: Limpopo	0	0	0	0	0.1493	0.5432	1.0907	1.4741	1.6052	1.6291
Computer and Other Businesses: Mpumalanga	0	0	0	0	-0.0114	0.1598	0.4337	0.7943	0.9174	0.9474
Computer and Other Businesses: North West	0	0	0	0	-0.0132	0.1846	0.5036	0.908	1.0545	1.0979
Computer and Other Businesses: Northern Cape	0	0	0	0	0.1697	0.5726	1.128	1.5021	1.6332	1.6622
Computer and Other Businesses: Western Cape	0	0	0	0	-0.0272	0.1092	0.3342	0.6895	0.8196	0.8616
Costruction: Eastern Cape	0	0	0	0	-0.4304	-0.8805	-1.3779	-1.3352	-1.3736	-1.4218
Costruction: Free State	0	0	0	0	-0.3549	-0.6975	-1.0771	-1.0462	-1.1057	-1.1784
Costruction: Gauteng	0	0	0	0	-0.5638	-1.1582	-1.8211	-1.7609	-1.7965	-1.8474
Costruction: KwaZulu	0	0	0	0	-0.3811	-0.742	-1.1162	-1.0177	-1.0073	-1.0154
Costruction: Limpopo	0	0	0	0	-0.3403	-0.6818	-1.0886	-1.1209	-1.2296	-1.3362
Costruction: Mpumalanga	0	0	0	0	-0.3035	-0.5813	-0.8942	-0.8576	-0.9125	-0.9801
Costruction: North West	0	0	0	0	-0.3256	-0.6267	-0.9835	-0.9962	-1.1006	-1.2091
Costruction: Northern Cape	0	0	0	0	-0.3185	-0.616	-0.9489	-0.9197	-0.9864	-1.0658
Costruction: Western Cape	0	0	0	0	-0.432	-0.8673	-1.3463	-1.2785	-1.2928	-1.3199
Education: Eastern Cape	0	0	0	0	0.0809	0.2944	0.5903	0.7934	0.8675	0.8836

Source: Gauteng Provincial Treasury (2020)

Table C.6: Provincial Sectoral Impact (Continued): SIM 2

Variable	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Education: Free State	0	0	0	0	0.029	0.1797	0.4044	0.6018	0.6675	0.678
Education: Gauteng	0	0	0	0	0.0587	0.2457	0.5109	0.7097	0.7803	0.7955
Education: KwaZulu	0	0	0	0	- 0.0737	- 0.0648	- 0.0185	0.1548	0.2061	0.2103
Education: Limpopo	0	0	0	0	0.0867	0.3288	0.671	0.8999	0.9865	1.0087
Education: Mpumalanga	0	0	0	0	- 0.0265	0.0547	0.1945	0.3884	0.4479	0.4539
Education: North West	0	0	0	0	- 0.0303	0.063	0.226	0.4472	0.5234	0.5411
Education: Northern Cape	0	0	0	0	0.0465	0.2266	0.4912	0.7044	0.7811	0.7993
Education: Western Cape	0	0	0	0	- 0.1233	- 0.175	- 0.1987	- 0.0241	0.0267	0.0316
Electric Machinary: Eastern Cape	0	0	0	0	1.2503	3.0026	5.1901	5.6002	5.7	5.6826
Electric Machinary: Free State	0	0	0	0	1.0358	2.4909	4.2637	4.5553	4.561	4.4824
Electric Machinary: Gauteng	0	0	0	0	0.8899	2.1463	3.6672	3.919	3.9226	3.8495
Electric Machinary: KwaZulu	0	0	0	0	1.5504	3.6815	6.3118	6.7901	6.9006	6.872
Electric Machinary: Limpopo	0	0	0	0	1.2184	2.8975	4.9153	5.1386	5.0824	4.9511
Electric Machinary: Mpumalanga	0	0	0	0	0.8918	2.1389	3.6206	3.8196	3.7657	3.6528
Electric Machinary: North West	0	0	0	0	1.0459	2.5255	4.3142	4.5891	4.5738	4.482
Electric Machinary: Northern Cape	0	0	0	0	1.3765	3.2879	5.6422	6.0217	6.063	5.9939
Electric Machinary: Western Cape	0	0	0	0	1.2195	2.9314	5.0659	5.5274	5.6465	5.6426
Electricity: Eastern Cape	0	0	0	0	0.1007	0.2795	0.5069	0.5956	0.6129	0.604
Electricity: Free State	0	0	0	0	0.2204	0.5786	1.032	1.201	1.2648	1.2844
Electricity: Gauteng	0	0	0	0	0.1553	0.4231	0.7654	0.9034	0.9487	0.9559
Electricity: KwaZulu	0	0	0	0	0.2397	0.6378	1.155	1.3958	1.5255	1.6035
Electricity: Limpopo	0	0	0	0	0.1909	0.5172	0.9327	1.0907	1.1376	1.1383
Electricity: Mpumalanga	0	0	0	0	0.2399	0.6294	1.1225	1.3065	1.3758	1.3977
Electricity: North West	0	0	0	0	0.1842	0.4805	0.8511	0.993	1.0427	1.0531
Electricity: Northern Cape	0	0	0	0	0.2011	0.547	0.9953	1.1801	1.2555	1.2844
Electricity: Western Cape	0	0	0	0	0.1115	0.329	0.6163	0.7765	0.8433	0.873
Financial Services: Eastern Cape	0	0	0	0	0.1573	0.5303	1.0366	1.3612	1.4718	1.4875
Financial Services: Free State	0	0	0	0	0.1356	0.491	0.9855	1.3292	1.4517	1.4778
Financial Services: Gauteng	0	0	0	0	0.1406	0.4946	0.981	1.308	1.4231	1.4458
Financial Services: KwaZulu	0	0	0	0	0.0233	0.2198	0.5112	0.8277	0.9346	0.9545
Financial Services: Limpopo	0	0	0	0	0.2048	0.6693	1.304	1.6809	1.824	1.8602
Financial Services: Mpumalanga	0	0	0	0	0.0796	0.3691	0.7861	1.1398	1.2662	1.2962
Financial Services: North West	0	0	0	0	0.0846	0.403	0.8652	1.2596	1.4098	1.4548
Financial Services: Northern Cape	0	0	0	0	0.1601	0.5465	1.0796	1.4245	1.5492	1.5764
Financial Services: Western Cape	0	0	0	0	0.0192	0.2189	0.522	0.8592	0.9847	1.0223
Fishing: Eastern Cape	0	0	0	0	0.0682	0.167	0.2846	0.3245	0.3335	0.3283
Fishing: Free State	0	0	0	0	0.0612	0.1534	0.2646	0.306	0.3162	0.312
Fishing: Gauteng	0	0	0	0	0.0698	0.1711	0.2918	0.3316	0.3406	0.3353
Fishing: KwaZulu	0	0	0	0	0.043	0.1123	0.1967	0.2368	0.2482	0.2466
Fishing: Limpopo	0	0	0	0	0.0671	0.1685	0.291	0.3351	0.3457	0.3409
Fishing: Mpumalanga	0	0	0	0	0.0525	0.1354	0.2364	0.2793	0.2906	0.2876
Fishing: North West	0	0	0	0	0.0526	0.1376	0.2419	0.2874	0.2997	0.2971
Fishing: Northern Cape	0	0	0	0	0.062	0.1565	0.2706	0.314	0.3246	0.3203
Fishing: Western Cape	0	0	0	0	0.0468	0.1199	0.2082	0.2475	0.258	0.2556
Food Products: Eastern Cape	0	0	0	0	0.0438	0.1706	0.335	0.4506	0.4565	0.4243
Food Products: Free State	0	0	0	0	0.0792	0.2626	0.5021	0.6448	0.6675	0.6463
Food Products: Gauteng	0	0	0	0	0.0483	0.1792	0.3448	0.4542	0.4529	0.4132
Food Products: KwaZulu	0	0	0	0	0.2311	0.604	1.0689	1.2551	1.3173	1.3287
Food Products: Limpopo	0	0	0	0	0.0377	0.1746	0.3549	0.4936	0.5023	0.4642
Food Products: Mpumalanga	0	0	0	0	- 0.0498	- 0.0217	0.0349	0.1852	0.214	0.2002
Food Products: North West	0	0	0	0	- 0.0179	0.0585	0.1754	0.3414	0.3771	0.3659
Food Products: Northern Cape	0	0	0	0	0.007	0.0935	0.211	0.3305	0.3303	0.2896
Food Products: Western Cape	0	0	0	0	0.1715	0.4722	0.8519	1.0298	1.0812	1.0835
Footwear: Eastern Cape	0	0	0	0	0.451	1.11	1.9214	2.156	2.2105	2.2
Footwear: Free State	0	0	0	0	0.4516	1.0934	1.8472	2.0209	2.0167	1.9444
Footwear: Gauteng	0	0	0	0	0.5362	1.2517	2.0707	2.1856	2.1482	2.0522
Footwear: KwaZulu	0	0	0	0	0.3611	0.9117	1.5935	1.846	1.9157	1.9202
Footwear: Limpopo	0	0	0	0	0.5556	1.3657	2.3356	2.5568	2.5638	2.4848
Footwear: Mpumalanga	0	0	0	0	0.2735	0.7095	1.2249	1.421	1.4298	1.3703
Footwear: North West	0	0	0	0	0.271	0.7437	1.3189	1.5594	1.5771	1.513
Footwear: Northern Cape	0	0	0	0	0.3113	0.7664	1.2705	1.3627	1.2673	1.1054
Footwear: Western Cape	0	0	0	0	0.5962	1.4468	2.4939	2.7756	2.8471	2.8431
Forestry: Eastern Cape	0	0	0	0	0.1752	0.4335	0.7421	0.8432	0.86	0.8406
Forestry: Free State	0	0	0	0	0.1479	0.3779	0.656	0.7568	0.7762	0.7605
Forestry: Gauteng	0	0	0	0	0.1829	0.4484	0.7627	0.8601	0.8722	0.8481
Forestry: KwaZulu	0	0	0	0	0.1584	0.3975	0.6852	0.7945	0.8187	0.8058
Forestry: Limpopo	0	0	0	0	0.1434	0.3723	0.651	0.7543	0.7752	0.7606
Forestry: Mpumalanga	0	0	0	0	0.149	0.3813	0.6617	0.7665	0.7854	0.768
Forestry: North West	0	0	0	0	0.1454	0.3771	0.6584	0.7667	0.7875	0.7712
Forestry: Northern Cape	0	0	0	0	0.1522	0.3875	0.6715	0.7733	0.7926	0.7765
Forestry: Western Cape	0	0	0	0	0.1355	0.3479	0.6053	0.7082	0.7325	0.7223
Glass products: Eastern Cape	0	0	0	0	0.5221	1.2831	2.2118	2.4354	2.4664	2.4234
Glass products: Free State	0	0	0	0	0.0689	0.2868	0.5892	0.8301	0.8849	0.8785
Glass products: Gauteng	0	0	0	0	0.2764	0.7236	1.2745	1.4728	1.4986	1.465
Glass products: KwaZulu	0	0	0	0	0.3703	0.9488	1.6644	1.9405	2.0133	2.0133
Glass products: Limpopo	0	0	0	0	0.3326	0.934	1.7095	2.0271	2.1008	2.0819
Glass products: Mpumalanga	0	0	0	0	0.0305	0.2282	0.5144	0.8011	0.8766	0.8801
Glass products: North West	0	0	0	0	0.0608	0.3516	0.7734	1.1426	1.2561	1.2776
Glass products: Northern Cape	0	0	0	0	0.2978	0.8213	1.4938	1.7744	1.8396	1.8258
Glass products: Western Cape	0	0	0	0	0.2186	0.6026	1.0856	1.3253	1.3768	1.3655

Source: Gauteng Provincial Treasury (2020)

Contact Information:

Physical Address:
75 Fox Street, Imbumba House,
Johannesburg
2107

Postal Address:
Private Bag X12,
Marshalltown,
Johannesburg,
2107

Switchboard:
011 227 9000

Email address:
GPTCommunications@gauteng.gov.za

Website Address:
www.gauteng.gov.za

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