



Provincial Equitable Share Allocations in South Africa

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Abstract

The main source of income to the nine provinces in South Africa are grant transfers from the national government. Over 97 per cent of provincial income is from these transfers. The provincial equitable share (PES) formula is used to distribute nationally raised government revenue over the nine provinces. The formula composes of six components from which a weighted average is calculated. This weighted average is used to distribute national raised government revenue to the nine provinces.

The purpose of this paper is to present the underlying theory and data describing the determination of the equitable share for each province (hereafter PES module). The PES module is an independent module that can be linked to the existing TERM-GPT model. TERM-GPT is a dynamic regional CGE model of South Africa with fiscal detail on a regional and national level.

The current version of the TERM-GPT model treats national transfers to the provinces as determined outside the model. The PES module proposes a framework where these transfers from national government to the provinces are determined within TERM-GPT. Thus, changes in the underlying drivers of the PES module are linked to changes in variables determined in TERM-GPT.

As an illustrative example, we reduce the percentage of people in each province with private medical aid insurance. Our results shows that reducing the number of people with private medical aid impact only the health component, which contributes 27 per cent to the weighted equitable share for each province. The health component includes two sub-components, (i) risk-adjusted population which accounts for the part of the population with and without medical aid, and (ii) the output sub-component, which accounts for hospital related factors such as the number of visit to primary health care centres. The risk-adjusted component is impacted by reducing the number of people with medical aid insurance. Our simulation shows that the main driver for changes in the risk-adjusted component is population growth-which is based on Statistics South Africa's mid-year population growth forecast. In their forecast Gauteng and Western Cape shows the highest population growth. Our results shows that Gauteng and Western Cape's share in national transfers increases between 2020 and 2024, while the remaining provinces' share falls. By 2024, this amount to an increase of 5,048 and 1,618 million Rand for Gauteng and Western Cape. KZN and Limpopo are the two worst affected provinces.

Keywords: Provincial Equitable Share, South Africa, Regions

JEL Classification: C68, H27

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1 Introduction

The main sources of provincial revenue in South Africa includes (i) provincial taxes such as motor licences, gambling tax and fees for goods and services provided; (ii) other revenue such as administrative fees, fines and penalties and (iii) transfers received from the national government.

Table 1 summarises the main sources of provincial revenue. Table 2 summarises the percentage contribution of each main sources. Provincial governments have limited ability to raise tax revenue. Tax revenue contributes less than 3 per cent to provincial revenue. Other sources of income such as administration fees contributes less than 1.5 per cent. By far the largest income source to provincial governments are from the national government via transfers to each province. This income source contributes over 96 per cent to each province's income.

Table 1. Economic classification of cash receipts of provincial governments for 2015-2018 (Rand million)

	Economic classification	2015	2016	2017	2018
1	Taxes	10,253	10,928	12,044	13,023
2	Social contributions	-	-	-	-
3	Grants received	445,330	471,699	500,619	538,785
4	Other revenue	6,182	6,168	6,709	6,441
5	Total	461,765	488,795	519,372	558,249

Source: Statistics South Africa (2019b)

Table 2. Contribution of sources of cash receipts for provincial governments for 2015-2018 (%)

	Economic classification	2015	2016	2017	2018
1	Taxes	2.2	2.2	2.3	2.3
2	Social contributions	-	-	-	-
3	Grants received	96.4	96.5	96.4	96.5
4	Other revenue	1.3	1.3	1.3	1.2
5	Total	100	100	100	100

Why are such large transfers required to provinces? Firstly, the allocation of revenue between the different spheres of government is based on the functions assigned to each governmental sphere. For example, national departments are responsible the social grant system, for police and justice, higher education while provincial government are responsible for basic education, health and social development and municipalities provide basic services such as water and sanitation, refuse removal and electricity. The allocation of national revenue to the provinces and to local governments are explicitly contained in the Constitution of South Africa.¹

Secondly, most of provincial services and the demand for their services, are not correlated, with the ability of a province to raise tax revenue. Provincial services are generally target towards poorer residents who have less ability to pay for services. Thus, there is a need to distribute national government revenue to provinces in an unbiased way. Thirdly, provincial transfers depends on how much national revenue is available to share. If national revenue declines, then transfers to provincial governments decline.

¹ Section 227 of the Constitution stipulates that “Local government and each province is (a) entitled to an equitable share of revenue raised nationally to enable it to provide basic services and perform the functions allocated to it, and (b) may receive other allocations from national government revenue, either conditionally or unconditionally” (The Constitution, 2012: 116).

In South Africa, the provincial equitable share formulas are used to divide nationally raised government revenue among the nine provinces and the local government share among the 278 municipalities. These formulas ensure that the allocations are made based on objective data, free from bias. The first part of Section 214 of the Constitution states that “An Act of Parliament must provide for –

- (a) The equitable division of revenue raised nationally among the national, provincial and local spheres of government;
- (b) The determination of each province’s share of the provincial share of the revenue; and
- (c) Any other allocations to provinces, local government or municipalities from the national government’s share of that revenue, and any conditions on which those allocations may be made” (The Constitution, 2016:110).

The second part of Section 214 sets out the factors that must be taken into account in determining the division of revenue. These include:

- (a) The national interest;
- (b) any provision that must be made in respect of the national debt and other national obligations;
- (c) the needs and interests of the national government, determined by objective criteria;
- (d) the need to ensure that the provinces and municipalities are able to provide basic services and perform the functions allocated to them;
- (e) the fiscal capacity and efficiency of the provinces and municipalities;
- (f) developmental and other needs of provinces, local government and municipalities;
- (g) economic disparities within and among the provinces;
- (h) obligations of the provinces and municipalities in terms of national legislation;
- (i) the desirability of stable and predictable allocations of revenue shares; and
- (j) the need for flexibility in responding to emergencies or other temporary needs, and other factors based on similar objective criteria (The Constitution, 2016: 110-111).

2 The TERM model for South Africa

The Centre of Policy Studies developed a dynamic TERM-style Computable General Equilibrium (CGE) model for the Gauteng Provincial Treasury. This model, called GPT-TERM, consists of two inter-dependent modules. The first module describes the core model equations related to province-specific behaviour of producers, investors, households, government and exporters. Hence, each province is modelled as an economy in its own right and linked with each other via trade and labour movements. For a description of the core model, see Horridge (2011) and Roos et al (2019).

The second part of TERM-GPT describes the Government Financial Statistics (GFS) module. The structure of this module is based on the GFS framework (IMF,2014) and determines the financial position of each of the nine provincial and national governments. This module includes three sections: (1) government revenue; (2) government expenditure and (3) government budget balances. In essence, changes in each GFS item are linked to changes in the core model through the use of relevant drivers of underlying economic activity and, in the case of taxes, to the relevant average tax rates. For example, the percentage change in government demand, determined in the core model, drives changes in the operating expense, which is one of the expenditure items listed in the GFS account. Various tax revenue items listed in the GFS income account (e.g. VAT, fuel levy and excise taxes) are driven by the change in tax collections, which are determined in the core TERM model.

On the other hand, changes in the GFS module may impact the core model. For example, the GFS module summarises government income and spending and the government budget balance. We may

want to hold the budget balance exogenous by endogenously determining the change in for example VAT. Thus, tax revenue items determined in the core model, adjust in such a way to keep the budget balance, set in the GFS module, unchanged. For a detailed description of the GFS module, see Roos et al (2019).

Of interest in this paper is the national government transfers to provinces. Table 3 summarises the revenue by income item for each of the nine provinces and national government. This table show that taxes such as income and company tax, VAT and fuel levies are located to the national government (see lines 1-6). Provincial governments generates income from gambling taxes and motor licences (lines 8 and 9) and other sources (lines 14-18). However, the main source of income for provincial governments are grants paid by the national government to each of the provinces (line 13). In the current version of GPT-TERM, we take the distribution of funds over the provinces as determined outside the model. In other words, GPT-TERM does not include theory to explain how total grants (line 13, column 10) are distributed over provinces (line 13, columns 1 – 9).

Table 3. GFS income by income item and government jurisdiction, 2015 (million Rand)

No	Government Income item	1 Limpopo	2 NorthWest	3 Mpumalanga	4 Gauteng	5 FreeState	6 NorthCape	7 WestCape	8 EastCape	9 KZN	10 = 1 + ... + 9 Total province	11 National	12 = 10 + 11 Total
1	incometax	0	0	0	0	0	0	0	0	0	0	353,918	353,918
2	companytax	0	0	0	0	0	0	0	0	0	0	207,872	207,872
3	payroll	0	0	0	0	0	0	0	0	0	0	14,032	14,032
4	propertyTax	0	0	0	0	0	0	0	0	0	0	12,471	12,471
5	vat	0	0	0	0	0	0	0	0	0	0	261,312	261,312
6	fuel	0	0	0	0	0	0	0	0	0	0	48,467	48,467
7	excise	3	3	2	0	0	4	27	18	26	83	35,296	35,379
8	gamble	63	105	84	800	0	18	519	144	539	2,272	0	2,272
9	motor	293	390	463	2,950	489	149	1,229	457	1,481	7,901	0	7,901
10	environment	0	0	0	0	0	0	0	0	0	0	11,303	11,303
11	customs	0	0	0	0	0	0	0	0	0	0	41,463	41,463
12	othertax	0	0	0	0	0	0	0	0	0	0	-16	16
13	NatGovGrant	50,344	30,341	35,805	85,608	27,168	13,089	45,974	62,278	94,566	445,173	0	445,173
14	OtherGrant	3	0	0	0	1	3	152	0	0	159	1,837	1,996
15	SalesGandS	236	265	129	599	255	72	591	240	460	2,847	1,822	4,669
16	Property	298	127	116	489	54	38	10	413	60	1,605	12,133	13,738
17	Other	510	49	92	113	58	15	322	290	281	1,730	13,639	15,369
18	NFA	21	18	5	2	17	1	121	26	49	260	78	338
19	Total	51,771	31,298	36,695	90,561	28,042	13,388	48,945	63,865	97,461	462,030	1,015,628	1,477,657

The aim of this paper is to present a framework where we endogenously determine the distribution of national grants over provinces. In South Africa, the distribution of funds are determined via the provincial equitable share formula. This PES formula consists of 6 components, each contributing a percentage to the weighted equitable share. Section 3 presents a set of equations, modelling each of the components of the equitable share formula as well as a weighted average for each province. This weighted average is used to distribute the total grants over provinces. This module, hereafter the PES module, is described in Section 3.

3 The Provincial Equitable Share (PES) module

The PES formula consists of six components. Each component is assigned a weight, which allows a weighted average to be calculated. This weighted average is then used to distribute funds from national government to each province. The formula components are (National Treasury, 2019: 16):²

² The formula components and the percentage allocations to each components have been consistent between 2015 – 2019.

1. An education component, based on the size of the school-age population (ages 5 to 17) and the number of learners (Grades R to 12) enrolled in public ordinary schools. This component contributes 48 per cent to the weighted PES.
2. A health component, based on each province’s risk profile and health system workload. This component contributes 27 per cent to the weighted PES.
3. A basic component, derived from each province’s share of the national population. This component contributes 16 per cent to the weighted PES.
4. An institutional component, divided equally between the provinces. This component contributes 5 per cent to the weighted PES.
5. A poverty component, based on income data. This component reinforces the redistributive bias of the formula. This component contributes 9 per cent to the weighted PES.
6. An economic output component, based on regional gross domestic product (GDP-R, measured by Statistics South Africa). This component contributes 1 per cent to the weighted PES.

The formulas are largely population driven, and therefore the allocations capture shifts in population across provinces, which affects the changes in the relative demand for public services across areas. The effects of these updates on the PES formulas are typically phased in over a three-year period. The transfers are unconditional, thus allowing provinces the flexibility to budget their resources the best way possible in order to provide services to their people. These equitable share allocations are supplemented with conditional allocations. Conditional allocations are in line with reforms in social development (National Treasury - Annexure W1, 2019: 14).³

3.1 Education component

The educational component contributes 48 per cent to the overall weighted average share. This component includes two sub-components, namely an age component and school enrolment component. For the age sub-component, Treasury considers the number of people between the age of 5-17 in each province (Statistics South Africa, 2012, 2019). For the school enrolment sub-component, Treasury use the enrolment data by province as compiled by the Department of Basic Education (Department of Basic Education, 2014-2019). The enrolment data shows the number of students in ordinary public and independent schools in South Africa (Department of Basic education, 2015).

3.1.1 Age component

In the TABLO code we read in the number of people aged between 5-17 (AGE5-17) by region and the number of enrolled students by region (SCHOOL). In our model, we allow AGE5-17 and SCHOOL to move in-line with official population and school projections.

Equation (E.1) equates the number of people, aged between 5-17, too two naturally exogenous shift variables.

$$AGE5-17_r = FAGE * FFAGE_r \quad r \in PROV \tag{E.1}$$

where FAGE and FFAGE are variables that accommodates changes in the number of people aged between 5-17 on a national and province level.

The ordinary change form of equation (E.1) is

³ The structures of the provincial and local government equitable share formulas are described in detail in Annexure W1 to the Division of the Revenue Bill and the Budget Review (National Treasury, 2015, 2016, 2017, 2018,2019)

$$\Delta \text{AGE5-17}_r = [\text{AGE5-17}_r / 100] * [f_age + ff_age_r] \quad r \in \text{PROV} \quad (\text{E.2})$$

where

- $\Delta \text{AGE5-17}$ is the ordinary change in the number of people aged 5-17;
- AGE5-17 is the number of people aged 5-17; and
- f_age and ff_age are the percentage change variables of the corresponding variables in levels for.

The percentage change of (E.2) is:

$$\text{age5-17}_r = \frac{\Delta \text{AGE5-17}_r}{\text{AGE5-17}_r} * 100 \quad r \in \text{PROV} \quad (\text{E.3})$$

3.1.2 School component

The number of students enrolled at a public school in each province moves in-line with official population projections. In levels form, (E.4) sets the number of school enrolments equal to two naturally exogenous shift variables.

$$\text{SCHOOL}_r = \text{FSchool} * \text{FFSchool}_r \quad r \in \text{PROV} \quad (\text{E.4})$$

where FSchool and FFSchool are national and provincial-specific shift variables that accommodates national and provincial changes in the number of learners enrolled at a public school.

The ordinary change form of equation (E.4) is

$$\Delta \text{SCHOOL}_r = [\text{SCHOOL}_r / 100] * [f_school + ff_school_r] \quad r \in \text{PROV} \quad (\text{E.5})$$

where

- ΔSCHOOL is the ordinary change in the number of learners enrolled at a public school in each province;
- SCHOOL is the number of learners enrolled at a public school in each province; and
- f_school and ff_school are the percentage change variables of the corresponding shift variables in (E.XX).

The percentage change in the number enrolled students in each province is:

$$\text{school}_r = \frac{\Delta \text{SCHOOL}_r}{\text{SCHOOL}_r} * 100 \quad r \in \text{PROV} \quad (\text{E.6})$$

3.1.3 Education component

The shares of the educational component is the average of the two sub-components calculated above. The province-specific age share is calculated as:

$$\text{AgeSHR}_r = \frac{\text{AGE5-17}_r}{\sum_{rr \in \text{REG}} \text{AGE5-17}_{rr}} \quad r \in \text{PROV} \quad (\text{E.7})$$

where AGE5-17 moves in line with estimates of the change in the 5-17 age cohort.

The province-specific enrolment share is calculated as:

$$\text{SchoolSHR}_r = \frac{\text{SCHOOL}_r}{\sum_{rr \in \text{REG}} \text{SCHOOL}_{rr}} \quad r \in \text{PROV} \quad (\text{E.8})$$

where SCHOOL moves in-line with estimates of school enrolment numbers in public schools.

Each of these sub-elements is assigned a weight of 50 per cent. Thus, in levels form, the region-specific educational share is calculated as:

$$\text{EducSHR}_r = \text{AgeSHR}_r * 0.5 + \text{SchoolSHR}_r * 0.5 \quad r \in \text{REG} \quad (\text{E.9})$$

3.1.4 2015 data

Table 4 shows the data required for the calculation of the two sub-components of the education component in the base year.

Columns (a) and shows the number of people between the age of 5 and 17 by province. This information was taken from the 2011 Census data. Column (b) shows the number of students enrolled at a public school in 2014 (National Treasury, 2015: 20). Columns (c) and (d) shows the age and school enrolment shares. Each of these shares contributes 50 per cent to the weighted educational share, which is in column (e).

For example the weighted educational share for 2015 is calculated as:

$$\text{EducSHR}_r^{2015} = \text{AgeSHR}_r^{2011} * 0.5 + \text{SchoolSHR}_r^{2014} * 0.5 \quad r \in \text{PROV} \quad (\text{E.10})$$

The education share for the Easter Cape is 15.1% and calculated as:

$$\text{EducSHR}_{\text{EasternCape}}^{2015} = 14.99 * 0.5 + 15.25 * 0.5 \quad (\text{E.11})$$

Table 4. Educational share, 2015

	Province	Age cohort 5-17	School enrolment	Age cohort share	School enrolment share	Weighted shares
		Census data 2011	2014			
		(a)	(b)			
1	EasternCape	1,856,317	1,916,285	15.0	15.2	15.1
2	FreeState	657,489	671,139	5.3	5.3	5.3
3	Gauteng	2,231,793	2,178,282	18.0	17.3	17.7
4	KZN	2,758,594	2,865,984	22.3	22.8	22.5
5	Limpopo	1,536,294	1,719,134	12.4	13.7	13.0
6	Mpumalanga	1,053,846	1,055,243	8.5	8.4	8.5
7	NorthCape	288,839	287,904	2.3	2.3	2.3
8	NorthWest	824,724	798,894	6.7	6.4	6.5
9	WesternCape	1,174,625	1,074,161	9.5	8.5	9.0
10	Total	12,382,521	12,567,026	100	100	100

Source: National Treasury Annexure W1, 2015: 20)

3.2 Health component

The health component contributes 27 per cent to the overall equitable share per region. This component is driven by two sub-components, namely a risk-adjusted population, that shows the number of uninsured people in each region (see Section 3.2.1), and output data from public hospitals (see Section 3.2.2). The risk-adjusted component contributes 75 per cent towards the health component and the output sub-component contributes 25 per cent.

3.2.1 Risk-adjusted population

The risk-adjusted sub-component estimates a weighted population in each province that do not have medical insurance. The number of uninsured persons in each province is calculated using a risk-adjusted capitation index, which is based on data from the council for Medical Schemes' Risk

Equalisation fund (National Treasury – Annexure W1, 2015: 20). This weighted population is used to calculate the percentage of population, in each province, that are uninsured.

Below we present three sets of equations explaining the determination of the share of people in each province without medical aid insurance. These components are:

- Mid-year population estimate for 2014.
- The percentage of insured population in each province.
- Risk-adjusted index.

The first set of equations imposes changes in the mid-year population estimate. Equation (E.12) sets the mid-year population estimate equal to naturally exogenous shift variables. These shift variables allows for population forecasts to be imposed either on a provincial level or national level.

$$POP_L_r = FPOP_L * FFPOP_L_r \quad r \in PROV \quad (E.12)$$

where

FPOP_L and FFPOP_L are national and provincial shift variables that accommodates changes in the population; and

The ordinary change form of (E.12) is

$$\Delta pop_l_r = [POP_L_r / 100] * [f_pop_l + ff_pop_l_r] \quad r \in PROV \quad (E.13)$$

where

- POP_L is the number of people in each province; and
- f_pop_l and ff_pop_l are the percentage change in the corresponding shift variables present in (E.12).

The percentage change in the number of people by region, is:

$$pop_l_r = \frac{\Delta pop_l_r}{POP_L_r} * 100 \quad r \in PROV \quad (E.14)$$

The second set of equations calculates the number of insured and uninsured people in each region. Similar to the equations above, we read in the share of insured population by province and allow this share to change based on data from the most recent General Household Survey.

The share of insured people is allowed to move exogenously imposed changes on a national or regional level.

$$SHR_INS_r = F_SHR_INS * FF_SHR_INS_r \quad r \in PROV \quad (E.15)$$

where F_SHR_INS and FF_SHR_INS are national and provincial shift variables that accommodates changes in the share of insured persons; and

The ordinary change form of equation (E.15) is

$$\Delta shrinsure_r = [SHR_INS_r / 100] * [f_shr_ins + ff_shr_ins_r] \quad r \in PROV \quad (E.16)$$

where

- $\Delta shrinsure$ is the ordinary change in the number of people in each province;
- SHR_INS is the number of people with medical insurance in each province; and

- f_shr_ins and ff_shr_ins are the percentage change variables of the corresponding shift variables in (E.xx); and

The percentage change in share of insured people is calculated as:

$$shr_ins_r = \frac{\Delta shr_ins_r}{SHR_INS_r} * 100 \quad r \in PROV \quad (E.17)$$

Equation (E.xxx) determines the number of people in each province with medical aid insurance.

$$INSURE_r = POP_L_r \times SHR_INS_r \quad r \in PROV \quad (E.18)$$

The ordinary change form of (E.XX) is,

$$\Delta insured_r = POP_L_r \times \Delta shrinsure_r + SHR_INS_r \times \Delta pop_1_r \quad r \in PROV \quad (E.19)$$

where

- $\Delta shrinsure$ is the ordinary change in the share of people by province with medical insurance as determined via (E.17); and
- Δpop_1 is the ordinary change in population growth in each province as determined in (E.13)

The percentage change in the number of insured people by province is determined as:

$$insure_r = \frac{\Delta insured_r}{INSURE_r} * 100 \quad r \in PROV \quad (E.20)$$

We can now determine the number of people who do not have medical aid insurance. This is the unweighted number of people and is adjusted by a risk adjustment index.

$$UNINSURE_r = POP_L_r - INSURE_r \quad r \in PROV \quad (E.21)$$

where

- POP_L is the population in each province;
- $INSURE$ is the number of people in each region with medical aid insurance as determined via (E.18).

The percentage of (E.21) is:

$$UNINSURE_r \times uninsured_r = POP_L_r \times pop_1_r - INSURE_r \times insured_r \quad r \in PROV \quad (E.22)$$

where

- pop_1 is the percentage change in provincial population growth, determined in (E.14); and
- $insured$ is the percentage change in the number of people in each province with medical insurance, determined via (E.20).

The third set of equations determines the weighted population in each province with no medical insurance. This weighted population is the uninsured number, determined via (E.22) which is adjusted for by an index that indicated each provinces health risk profile (see E.23)). Based on the information from the National Treasury, this index has not changed since the early 2012 and there is no indication of future changes. However, in our model, we allow for exogenously imposed national and regional changes to this risk index.

$$RISK_ADJ_r = FRISK \times FFRISK_r \quad r \in PROV \quad (E.23)$$

where FRISK and FFRISK are shift variables that accommodates aggregate and provincial changes in the risk index.

The ordinary change form of equation (E.23) is

$$\Delta risk_adj_r = [RISK_ADJ_r / 100] * [f_risk + ff_risk_r] \quad r \in PROV \quad (E.24)$$

where f_risk and ff_risk are the percentage change in the corresponding shift variables present in (E.23).

The weighted uninsured population is determined via:

$$W_UNINSURE_r = UNINSURE \times RISK_ADJ_r \quad r \in PROV \quad (E.25)$$

where

- $W_UNINSURE$ is the number of risk-adjusted uninsured people in each province;
- $UNINSURE$ is the number of people, in each province, who are uninsured; and
- $RISK_ADJ$ is an index of each province's health risk profile.

The ordinary change form of equation (E.25) is

$$\Delta w_uninsure_r = UNINSURE_r \times \Delta risk_adj_r + RISK_ADJ \times \Delta uninsure_r \quad r \in PROV \quad (E.26)$$

where

- $\Delta risk_adj_r$ is the ordinary change in the risk profile of each province as calculated via (E.24); and
- $\Delta uninsure_r$ is the ordinary change in the number of uninsured people in each province.

The percentage change in the risk-adjusted number of people in each province, is calculated as:

$$w_uninsure_r = \frac{\Delta w_uninsure_r}{W_UNINSURE_r} * 100 \quad r \in PROV \quad (E.27)$$

It is from the risk-adjusted population that we calculate the share of people in each province, who do not have medical aid.

$$SHR_UNINSURE_r = \frac{W_UNINSURE_r}{\sum_{rr} W_UNINSURE_{rr}} \quad r \in PROV \quad (E.28)$$

This share contributes 75 per cent towards the weighted health component.

3.2.2 2015 data

Table 5 shows the data used to calculate the risk-adjusted part of the population that do not have medical aid insurance. To calculate the uninsured population for 2015, we need the following information:

- Mid-year population estimate.
- The percentage of insured population by province.
- Risk-adjusted index.

The risk-adjusted shares for 2015 is presented in Table 5. Column (a) shows the number of people in each province in 2014 and is based on Statistics South Africa's mid-year population estimates. Column (b) shows the percentage of insured people in each province and is adopted from the most up-to date General Household Survey (GHS). For 2015, National Treasury adopts the 2013 GHS

percentage of people in each province with medical aid insurance. Column (c) shows the risk-adjustment factor and is an index of each province's health risk profile.

The number of insured people in each province (column d) is the product of the population estimate (column a) and the share of insured people (column b). The number of uninsured people in each province (column e) is the difference between the mid-year population estimate and the number of insured people. The number of uninsured people in each province is weighted by a risk-adjusted index. The risk-adjusted population is calculated by multiplying the uninsured population (column e) with the risk-adjustment index (column c). Finally, each provinces share of this weighted population is calculated from the numbers in column (f). These shares, presented in column (g), contributes 75 per cent to the health component share.

Table 5. Risk-adjusted shares for 2015

	Province	Mid-year population estimate (2014)	Insured population (2013)	Risk-adjusted index	Insured population	Uninsured population	Weighted population 2015	Risk-adjusted shares 2015 (%)
		(a)	(b)	(c)	(d) = (a)*(b)	(e) = (a)-(d)	(f) = (c)*(e)	(g)
1	EasternCape	6,787	10.5	96.9	712.62	6,074	5,886	13.4
2	FreeState	2,787	17.1	103.3	476.54	2,310	2,386	5.4
3	Gauteng	12,915	29.3	105.4	3,784.04	9,131	9,624	21.9
4	KZN	10,694	13.3	98.9	1,422.36	9,272	9,170	20.8
5	Limpopo	5,631	9.00	91.6	506.75	5,124	4,693	10.7
6	Mpumalanga	4,229	15.6	95.7	659.77	3,570	3,416	7.8
7	NorthCape	1,167	20.2	100.7	235.67	931	938	2.1
8	NorthWest	3,676	15.6	102.2	573.50	3,103	3,171	7.2
9	WesternCape	6,116	25.7	104	1,571.89	4,544	4,726	10.7
10	Total	54,002				44,059	44,011	100

Source: National Treasury, Annexure W1, 2015: 20.

3.2.3 The output sub-component

This sub-component is made up of two separate hospital related indicators. The first set of numbers use patient load data from the District Health Information Services to calculate the average number of visits to primary healthcare clinics. These shares contributes 5 per cent of the health component. The second set of equations determines the hospital workload in each province. These shares contributes 20 per cent of the health component. In total, the output component contributes 25 per cent of the health component.

The first set of equations calculate the average number of primary healthcare visits based on year t-1 and t-2 data. Equations (E.29) and (E.30) equates the number of primary health care visits in year t-1 (HealthV_L) and year t-2 (HealthV_2L) to two shift variables.

$$\text{HealthV_L}_r = F_Health_L \times FF_HEALTH_L_r \quad r \in \text{PROV} \quad (\text{E.29})$$

$$\text{HealthV_2L}_r = F_Health_2L \times FF_HEALTH_2L_r \quad r \in \text{PROV} \quad (\text{E.30})$$

where

- F_HEALTH_L and FF_HEALTH_L are shift variables that accommodates aggregate and province-specific changes to the number of visits to primary health clinics in year t-1; and
- F_HEALTH_2L and FF_HEALTH_2L is the shift variables that accommodates aggregate and provincial-specific changes to the number of visits to primary health clinics in year t-2.

The ordinary change of Equations (E.29) and (E.30) are:

$$\Delta\text{healthv}_{1,r} = [\text{HEALTHV}_{L,r} / 100] * [f_{\text{healthv}_{1,r}} + ff_{\text{healthv}_{1,r}}] \quad r \in \text{PROV} \quad (\text{E.31})$$

$$\Delta\text{healthv}_{2l,r} = [\text{HEALTHV}_{2L,r} / 100] * [f_{\text{healthv}_{2l,r}} + ff_{\text{healthv}_{2l,r}}] \quad r \in \text{PROV} \quad (\text{E.32})$$

where

- $f_{\text{healthv}_{1,r}}$ and $ff_{\text{healthv}_{1,r}}$ are percentage change variables of the levels variables in (E.31);
- $f_{\text{healthv}_{2l,r}}$ and $ff_{\text{healthv}_{2l,r}}$ are the percentage variables of the appropriate level variables in (E.32);

The average number of visits to primary care facilities is calculated as:

$$\text{Ave_HealthV}_r = \frac{(\text{HealthV}_{L,r} + \text{HealthV}_{2L,r})}{2} \quad r \in \text{PROV} \quad (\text{E.33})$$

The share of primary health visits by region is calculated in (E.34) and contributes 5 per cent to the health component:

$$\text{SHR_VISIT}_r = \frac{\text{Ave_HealthV}_r}{\sum_{rr} \text{Ave_HealthV}_{rr}} \quad r \in \text{PROV} \quad (\text{E.34})$$

The second set of equations in the output sub-component determines each province's share of the total patient-day equivalents from public hospitals. This share is based on year t-1 and t-2 data. Equations (E.35) and (E.36) equates the number of primary health care visits in year t-1 (HOSP_L) and year t-2 (HOSP_2L) to two shift variables.

$$\text{HOSP}_{L,r} = \text{FHOSP}_{L,r} \times \text{FFHOSP}_{L,r} \quad r \in \text{PROV} \quad (\text{E.35})$$

$$\text{HOSP}_{2L,r} = \text{FHOSP}_{2L,r} \times \text{FFHOSP}_{2L,r} \quad r \in \text{PROV} \quad (\text{E.36})$$

where

- $\text{FHOSP}_{L,r}$ and $\text{FFHOSP}_{L,r}$ are shift variables that accommodates aggregate and province-specific changes to the number of total patient-day equivalents from public hospitals in year t-1; and
- $\text{FHOSP}_{2L,r}$ and $\text{FFHOSP}_{2L,r}$ are shift variables that accommodates aggregate and region-specific changes to the number of total patient-day equivalents from public hospitals in year t-2.

The ordinary change of Equations (E.35) and (E.36) are:

$$\Delta\text{hosp}_{1,r} = [\text{HOSP}_{L,r} / 100] * [f_{\text{hosp}_{1,r}} + ff_{\text{hosp}_{1,r}}] \quad r \in \text{PROV} \quad (\text{E.37})$$

$$\Delta\text{hosp}_{2l,r} = [\text{HOSP}_{2L,r} / 100] * [f_{\text{hosp}_{2l,r}} + ff_{\text{hosp}_{2l,r}}] \quad r \in \text{PROV} \quad (\text{E.38})$$

where

- $f_{\text{hosp}_{1,r}}$ and $ff_{\text{hosp}_{1,r}}$ are the percentage change in the shift variables related to the appropriate shift variables in (E.35);
- $f_{\text{hosp}_{2l,r}}$ and $ff_{\text{hosp}_{2l,r}}$ are the percentage change in the shift variables related the appropriate shift variables in (E.36);

The average number of total patient-day equivalents from public hospitals is calculated as:

$$\text{Ave_Hosp}_r = \frac{(\text{Hosp_L}_r + \text{Hosp_2L}_r)}{2} \quad r \in \text{PROV} \quad (\text{E.39})$$

The share of total patient-day by region is calculated in (E.40) and contributes 20 per cent to the health component:

$$\text{SHR_HOSP}_r = \frac{\text{Ave_HOSP}_r}{\sum_{rr} \text{Ave_HOSP}_{rr}} \quad r \in \text{PROV} \quad (\text{E.40})$$

The weighted health share is determined as:

$$\text{HEALTH_SHR}_r = \text{SHR_UNINSURE}_r * 0.75 + \text{SHR_VISIT}_r * 0.05 + \text{SHR_HOSP}_r * 0.2 \quad (\text{E.41})$$

where

- SHR_UNINSURE_r is each province's share in the total number of people with no medical insurance as calculated in (E.28);
- SHR_VISIT_r is each province's share in the total number of visit to primary health care facilities as calculated in (E.34);
- SHR_HOSP_r is each province's share in the total workload as calculated in (E.40).

3.2.4 2015 data

Table 6 shows the data used to calculate the shares for the output sub-component for 2015. There are two parts to the output sub-component shares. The first part relates to the average number of visit to a primary healthcare clinic. For 2015, the average number of visit at primary healthcare clinics are determined from 2012/13 and 2013/14 data (National Treasury, 2015: 21). These numbers are presented in Table 6, column (a) and (b). Column (c) shows the average number of visits and the provincial shares, calculated from the average visits, in column (d). This share contributes 5 per cent to the health component.

The second part relates to each provinces share of the total patient-day equivalents from public hospitals. For 2015, the number of total patient-day equivalents from public hospitals for 2012/13 and 2013/14 is used to calculate the average workload. These numbers are presented in Table 6, column (e) and (f) (National Treasury, 2015: 21). Column (g) shows the average workload, and column (h) shows the each province's share in the total workload. This share contributes 20 per cent of the health component. In total, the output component is 25 per cent of the health component (National Treasury Annexure W1, 2015:21).

Table 6. Output sub-component shares

	Province	Primary health care visits				Hospital workload patient-day equivalents			
		2012/13	2013/14	Average	Share	2012/13	2013/14	Average	Share
		(a)	(b)	(c) = [(a)+(b)]/2	(d)	(e)	(f)	(g) = [(e)+(f)]/2	(h)
1	EasternCape	17,725	17,379	17,552	13.6	4,523	4,572	4,548	14.1
2	FreeState	7,488	6,894	7,191	5.6	1,824	1,736	1,780	5.5
3	Gauteng	23,084	23,647	23,366	18.1	6,611	6,722	6,667	20.7
4	KZN	31,112	31,885	31,499	24.4	8,112	7,995	8,054	25.0
5	Limpopo	14,330	14,256	14,293	11.1	2,898	2,922	2,910	9.0
6	Mpumalanga	9,056	9,143	9,100	7.1	1,819	1,931	1,875	5.8
7	NorthCape	3,413	3,398	3,406	2.6	514	526	520	1.6
8	NorthWest	7,890	8,047	7,969	6.2	1,578	1,674	1,626	5.0
9	WesternCape	14,859	14,308	14,584	11.3	4,196	4,283	4,240	13.2
10	Total	128,957	128,957	128,957	100	32,075	32,361	32,218	100

Source: National Treasury Annexure W1, 2015: 21.

3.2.5 Weighted health component shares

Table 7 shows the individual shares used to determine the weighted health component shares for 2015. Column (a) is the risk-adjusted share of people in each region without medical aid insurance as determined in Table 5, column (g). Column (b) is the share of each province in the total number of visits at primary healthcare facilities and calculated in Table 6, column (d). Column (c) in Table 7 is the share of each province's workload as calculated in Table 6, column (h). Each column contributes a certain percentage to the overall weighted health component share.

Table 7. Health component shares, 2015 (%)

	Province	Risk-adjusted	Primary healthcare	Hospital component	Weighted shares
		75%	5%	20%	2015
		(a)	(b)	(c)	(d)
1	EasternCape	13.4	13.6	14.1	13.5
2	FreeState	5.4	5.6	5.5	5.5
3	Gauteng	21.9	18.1	20.7	21.4
4	KZN	20.8	24.4	25.0	21.8
5	Limpopo	10.7	11.1	9.0	10.4
6	Mpumalanga	7.8	7.1	5.8	7.3
7	NorthCape	2.1	2.6	1.6	2.1
8	NorthWest	7.2	6.2	5.0	6.7
9	WesternCape	10.7	11.3	13.2	11.3
10	Total	100	100	100	100

Source: National Treasury Annexure W1, 2015: 21.

3.3 Basic component

The basic component shows each province's share of the national population (E.42). This component contributes 16 per cent of the total equitable share. These shares are based on Statistics South Africa's mid-year population estimates (National Treasury Annexure W1, 2015: 21). Equations (E.12) to (E.14) shows how population by province change over time.

$$SHR_BASIC_r = \frac{POP_L_r}{\sum_{rr} POP_L_{rr}} * 100 \quad r \in PROV \quad (E.42)$$

3.3.1 2015 data

To calculate the basic share, the 2014 mid-year population estimates from Statistics South Africa is used. Table 8 shows the population by province in column (a) and column (b) shows the provincial share.

Table 8. The basic component share, 2015

	Province	Mid-year population estimate (2014)	Share
		(a)	(b)
1	EasternCape	6,787	12.6
2	FreeState	2,787	5.2
3	Gauteng	12,915	23.9
4	KZN	10,694	19.8
5	Limpopo	5,631	10.4
6	Mpumalanga	4,229	7.8
7	NorthCape	1,167	2.2
8	NorthWest	3,676	6.8
9	WesternCape	6,116	11.3
10	Total	54,002	100

Source: National Treasury Annexure W1, 2015: 22.

3.4 Poverty component

The poverty component introduces a redistributive element to the formula and contributes 3 per cent of the total equitable share. This component considers the percentage of poor population in each province, as given in the 2010/11 Income and Expenditure Survey (IES) (StatsSA, 2012b). The poor population are those who fall in the lowest 40 per cent of household income in the 2010/11 IES. The number of people considered as poor in each province is calculated by multiplying the percentage of poor in each region with the mid-year population estimate. Although the share of poor taken from the IES remains constant at the 2010/11 shares, we allow national or provincial-specific changes to these shares.

$$IES_SHR_r = F_POOR \times FF_POOR_r \quad r \in PROV \quad (E.43)$$

where F_POOR and FF_POOR are shift variables that accommodates aggregate and province-specific changes to the share of poor.

The ordinary change in the share is given as:

The ordinary change of (E.43) is:

$$\Delta ies_shr_r = [IES_SHR_r / 100] * [f_poor + ff_poor_r] \quad r \in PROV \quad (E.44)$$

where f_poor and ff_poor are the percentage change of the appropriate shift variables in (E.43).

The number of poor in each province is calculated as:

$$POOR_r = POP_L_r \times IES_SHR_r \quad r \in PROV \quad (E.45)$$

where

- POP_L is the mid-year estimate of the regional population; and
- IES_SHR is the percentage of poor population who fall in the lowest 40 per cent of household income.

The ordinary change in the number of poor in each province is determined as:

$$\Delta\text{poor}_r = \text{POP_L}_r \times \Delta\text{ies_shr}_r + \text{IES_SHR} \times \Delta\text{pop_1}_r \quad r \in \text{PROV} \quad (\text{E.46})$$

where

- $\Delta\text{ies_shr}$ is the ordinary change in the share of the poor in each province and determined via (E.43);
- $\Delta\text{pop_1}$ is the ordinary change in the provincial population and determined via (E.13).

The provincial poverty shares are then calculated from the number of poor people in each province (National Treasury Annexure W1, 2015: 21).

$$\text{SHR_POOR}_r = \frac{\text{POOR}_r}{\sum_{rr} \text{POOR}_{rr}} * 100 \quad (\text{E.47})$$

3.4.1 2015 data

Table 9 summarises the data required to calculate the 2015 poverty share. Column (a) shows the percentage of poor taken from the 2010/11 IES and column (b) shows the mid-year population estimate for 2014. Column (c) shows the number of poor in each province and the provincial share in column (d).

Table 9. Poverty component, 2015

	Province	Income and Expenditure Survey 2010/11	Mid-year population estimate (2014)	Poor population	Share
		(a)	(b)	(c) = (a)*(b)/100	(d)
1	EasternCape	52.0	6,786.9	3,529.2	16.2
2	FreeState	41.4	2,786.8	1,153.7	5.3
3	Gauteng	28.9	12,914.8	3,732.4	17.1
4	KZN	45.3	10,694.4	4,844.6	22.2
5	Limpopo	52.9	5,630.5	2,978.5	13.7
6	Mpumalanga	47.3	4,229.3	2,000.5	9.2
7	NorthCape	40.8	1,166.7	476.0	2.2
8	NorthWest	47.9	3,676.3	1,760.9	8.1
9	WesternCape	21.9	6,116.3	1,339.5	6.1
10	Total		54,002	21,815	100

Source: National Treasury Annexure W1, 2015: 22.

3.5 Institutional component

This component recognises that some costs associated with the running and functioning of a provincial government and providing services are not directly related to the size of the province's population and any other factors related to other components (National Treasury Annexure W1, 2015: 22). The share is therefore distributed evenly between provinces and contributes 5 per cent to the total equitable share. Each province is allocated 11.1 per cent.

$$\text{SHR_INST}_r = 11.1 \quad (\text{E.48})$$

Table 10. Institutional component, 2015

	Province	Share
		(a)
1	EasternCape	11.1
2	FreeState	11.1
3	Gauteng	11.1
4	KZN	11.1
5	Limpopo	11.1
6	Mpumalanga	11.1
7	NorthCape	11.1
8	NorthWest	11.1
9	WesternCape	11.1
10	Total	100.0

Source: National Treasury Annexure W1, 2015: 23.

3.6 Economic activity component

The economic activity component is a proxy for provincial tax capacity and expenditure assignments. This component contributes 1 per cent to the total equitable share for each province. Regional GDP is used to calculate this share.

$$SHR_GDP_r = \frac{GDP_r}{\sum_{rr} GDP_{rr}} * 100 \quad (E.49)$$

where GDP is the value of regional GDP in year t-2.

3.6.1 2015 data

For the base year, regional GDP data for 2013 is used to compute the economic activity component (National Treasury Annexure W1, 2015: 23)

Table 11. Economic activity component, 2015

	Province	GDP 2012	Share
		(a)	(b)
1	EasternCape	234,536	7.5
2	FreeState	162,601	5.2
3	Gauteng	1,089,535	34.7
4	KZN	496,431	15.8
5	Limpopo	223,090	7.1
6	Mpumalanga	222,149	7.1
7	NorthCape	70,203	2.2
8	NorthWest	201,736	6.4
9	WesternCape	438,700	14.0
10	Total	3,138,981	100

Source: National Treasury Annexure W1, 2015: 23.

3.7 Provincial Equitable share

The weighted provincial equitable share for each province is calculated as:

$$\begin{aligned} SHR_PES_r = & SHR_EDUC_r * 0.48 + SHR_HEALTH_r * 0.27 \\ & + SHR_BASIC_r * 0.16 + SHR_INST_r * 0.05 \\ & + SHR_POOR_r * 0.03 + SHR_GDP_r * 0.01 \end{aligned} \quad (E.50)$$

where

- SHR_EDUC is the weighted educational share as calculated via (E.9). This share contributes 48 percent to the PES.
- SHR_HEALTH is the weighted health share as calculated via (E.41). This share contributes 27 per cent to the PES.
- SHR_BASIC is the weighted health share as calculated via (E.xxx). This share contributes 16per cent to the PES.
- SHR_INST is the weighted health share as calculated via (E.42). This share contributes 5per cent to the PES.
- SHR_POOR is the weighted health share as calculated via (E.48). This share contributes 3 per cent to the PES.
- SHR_GDP is the weighted health share as calculated via (E.49). This share contributes 1 per cent to the PES.

Table 12 presents for 2015, the shares for component and the weighted average. Columns (a) to (f) are the provincial shares for each of the components. Column (g) is the weighted average of these components.

Table 12. Distributing the equitable shares by province, 2015 (%)

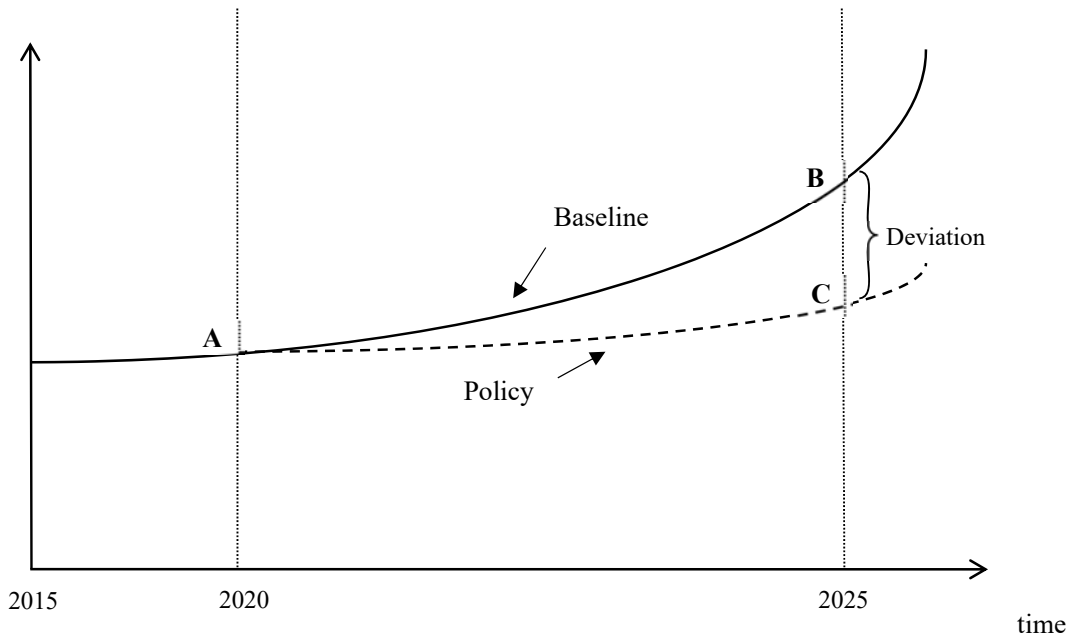
	Province	Education	Health	Basic	Poverty	Economic activity	Institutional	Weighted average
		48%	27%	16%	3%	1%	5%	100%
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	EasternCape	15.1	13.5	12.6	16.2	7.5	11.1	14.0
2	FreeState	5.3	5.5	5.2	5.3	5.2	11.1	5.6
3	Gauteng	17.7	21.4	23.9	17.1	34.7	11.1	19.5
4	KZN	22.5	21.8	19.8	22.2	15.8	11.1	21.3
5	Limpopo	13.0	10.4	10.4	13.7	7.1	11.1	11.8
6	Mpumalanga	8.5	7.3	7.8	9.2	7.1	11.1	8.2
7	NorthCape	2.3	2.1	2.2	2.2	2.2	11.1	2.7
8	NorthWest	6.5	6.7	6.8	8.1	6.4	11.1	6.9
9	WesternCape	9.0	11.3	11.3	6.1	14.0	11.1	10.1
10	Total	100	100	100	100	100	100	100

Source: National Treasury, 2015: 19.

4 Baseline simulation

Policy analysis with a dynamic CGE model requires two simulations, as illustrated in Figure 1. The first simulation is the baseline forecast or business-as-usual simulation. This simulation models the growth in the economy over time in the absence of the policy change under consideration. The second simulation is the policy simulation. This simulation generates a second forecast that incorporates all the exogenous features of the baseline forecast, plus policy-related shocks reflecting the details of the policy under consideration. The impacts of a policy are typically reported as a percentage deviation away from the baseline forecast.

Figure 1. Policy analysis with a dynamic model



Below we describe the data imposed on each of the equitable share components. The data falls into two groups. The first set of data describes the period 2015 to 2019. Data in this group are observed, and therefore adopted from the National Treasury information (National Treasury Annexure W1, 2015, 2016, 2017, 2018, 2019). From 2020 onwards, we rely on estimates from National Treasury and Statistics South Africa. For the mid-year population estimates we use the forecast estimates from Statistics South Africa, which forecasts population growth by gender, age and region up to 2024 (StatsSA, 2019). For variables where not forecast data is available we use an average growth rate over 2015-2019.

Table 13. List of forecast variables

Variable	Relevant component	Forecast data for 2019-2024
AGE5-17	Education	Mid-year population estimate
SCHOOL_LAG	Education	Average growth
POP_L	Health, Basic and Poverty	Mid-year population forecast
SHR_INS	Health	Average for 2015-2019
RISK_ADJ	Health	Unchanged
PRIM_HV_L	Health	Mid-year population forecast
PRIM_HV_2L	Health	Mid-year population forecast
HOSP_WK_L	Health	Mid-year population forecast
HOSP_WK_2L	Health	Mid-year population forecast
SHR_POOR	Poverty	Unchanged
ECN_ACT	Economic activity	Average growth

4.1 Education component

Below we present the data required to forecast the education component. This component consists of two sub-components. The first sub-components requires information on the number of students aged between 5 and 17 in each province. The second sub-component requires information on the number of students enrolled at a public school.

4.1.1 5-17 Age cohort

Table 14 shows the number of people in each province between the age of 5-17. For 2015-2018, we notice that the number of people aged between 5-17 remains unchanged from the 2010/11 Census information (columns a – c). In 2019, the Census numbers used to capture the 5-17 age cohort was replaced with the annual mid-year population estimates produced by Statistics South Africa (National Treasury Annexure W1, 2019:16). These numbers are in column (d).

Table 15 presents the annual growth rates for the 5-17 age cohort.⁴ For 2015-2018, the percentage growth in this age cohort remains unchanged as these numbers are based on the 2011 Census data. In 2019 the Census data is replaced with the mid-year population estimates.⁵ These growth rates are presented in column (d). From 2020 onwards the percentage growth rates are based on the mid-year population estimates for the age group 5-19 (Table 15, columns (e) to (i)). Adopting the most recent population estimates eliminate drastic region-specific adjustments and avoid under- and over estimation of population growth as this would impact the age share by region. Based on these growth rates, the number of people in the age cohort 5-17 for 2020-2024, is calculated. Finally, the age shares are calculated (Table xxx). These shares contributes 50 per cent to the educational share.

Table 14. 5-17 Age cohort data, 2015 – 2019

	Province	2011 Census data				Mid-year population
		2015*	2016 ^x	2017 ^β	2018 ^γ	2019 ^δ
		(a)	(b)	(c)	(d)	(e)
1	EasternCape	1,856,317	1,856,317	1,856,317	1,856,317	1,859,255
2	FreeState	657,489	657,489	657,489	657,489	679,935
3	Gauteng	2,231,793	2,231,793	2,231,793	2,231,793	2,458,767
4	KZN	2,758,594	2,758,594	2,758,594	2,758,594	2,825,362
5	Limpopo	1,536,294	1,536,294	1,536,294	1,536,294	1,566,223
6	Mpumalanga	1,053,846	1,053,846	1,053,846	1,053,846	1,087,924
7	NorthCape	288,839	288,839	288,839	288,839	294,073
8	NorthWest	824,724	824,724	824,724	824,724	880,695
9	WesternCape	1,174,625	1,174,625	1,174,625	1,174,625	1,251,254
10	Total	12,382,521	12,382,521	12,382,521	12,382,521	12,903,488

* National Treasury, 2015: 20.

^x National Treasury, 2016: 17.

^β National Treasury, 2017: 18.

^γ National Treasury, 2018: 19.

^δ National Treasury, 2019: 17.

⁴ The mid-year population estimate shows the number of people in each 5 year interval age cohort. For example, Statistics South Africa estimates that in 2021 there will be 381,857 males between of 5-9 in the Eastern Cape. As a consequence we do not have the number of people aged between 5-17, but between 5-19. For 2020 onwards, we therefore impose the percentage grow for the age group 5-19.

⁵ In 2019, it was decided that the 2011 Census numbers used to capture the 5-17 age cohort, be replaced with the annual mid-year population estimates produced by Statistics South Africa. The mid-year population numbers are more up to date and will reduce the adjustment of updating the age component between Census updates-scheduled for 2021 (National Treasury Annexure W1, 2019:16-17).

Table 15. Annual growth rates in the 5-17 age cohort, 2016-2024.

	Province	2011 Census data			Mid-year population	Forecast*				
		2016	2017	2018	2019	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	EasternCape	-	-	-	0.16	1.25	1.35	-0.54	-0.37	-0.35
2	FreeState	-	-	-	3.41	0.75	0.73	0.28	0.25	-0.10
3	Gauteng	-	-	-	10.17	2.00	1.66	4.02	3.32	2.17
4	KZN	-	-	-	2.42	1.16	1.31	1.12	1.31	1.15
5	Limpopo	-	-	-	1.95	1.47	1.76	0.44	0.64	0.62
6	Mpumalanga	-	-	-	3.23	1.10	1.25	1.01	1.18	1.05
7	NorthCape	-	-	-	1.81	0.99	1.08	0.59	0.67	0.54
8	NorthWest	-	-	-	6.79	1.77	1.69	1.40	1.34	1.01
9	WesternCape	-	-	-	6.52	1.59	1.43	2.12	1.77	1.05
10	Total	-	-	-	4.21	1.44	1.44	1.50	1.43	1.03

* Statistics South Africa, 2019.

4.1.2 Student enrolment

The second sub-component of the education share is the number of students enrolled at ordinary public and independent schools in South Africa. For 2015 to 2017, school enrolment information is drawn from the Department of Basic Education's School Realities Survey. The 2018 learner enrolment numbers are based on the Department of Basic Education's new data collection system, LURITS. This new system allows for data to be verified and students' progress to be track throughout the school careers (National Treasury Annexure W1, 2018: 18).

Table 16 presents the number of school enrolments for 2014 to 2018. No data on school enrolment is available from 2019 onwards. We therefore impose the average growth rate, based on data for 2014-2018, for 2019 to 2024.

Table 16. School enrolment data, 2014 – 2018

	Province	School enrolment				
		2014*	2015*	2016 ^β	2017 ^β	2018 ^γ
		(a)	(b)	(c)	(d)	(e)
1	EasternCape	1,916,285	1,948,855	1,957,187	1,902,213	1,881,735
2	FreeState	671,139	681,310	687,072	691,295	696,021
3	Gauteng	2,178,282	2,247,389	2,310,810	2,342,025	2,360,207
4	KZN	2,865,984	2,875,074	2,872,339	2,868,598	2,851,861
5	Limpopo	1,719,134	1,752,451	1,764,551	1,768,125	1,753,297
6	Mpumalanga	1,055,243	1,077,372	1,072,151	1,080,084	1,068,624
7	NorthCape	287,904	289,233	291,650	291,760	292,800
8	NorthWest	798,894	813,161	828,674	827,628	831,886
9	WesternCape	1,074,161	1,094,752	1,113,563	1,117,468	1,125,331
10	Total	12,567,026	12,779,597	12,897,997	12,889,196	12,861,762

Source: * National Treasury, 2016: 17.

^β National Treasury, 2018: 19.

^γ National Treasury, 2019: 16.

Table 17. Annual percentage change in school enrolment 2015 – 2024

	Province	School enrolment				Average
		2015*	2016 ^β	2017 ^β	2018 ^γ	2019-2024
		(a)	(b)	(c)	(d)	(e)
1	EasternCape	1.70	0.43	-2.81	-1.08	-0.45
2	FreeState	1.52	0.85	0.61	0.68	0.91
3	Gauteng	3.17	2.82	1.35	0.78	2.03
4	KZN	0.32	-0.10	-0.13	-0.58	-0.12
5	Limpopo	1.94	0.69	0.20	-0.84	0.49
6	Mpumalanga	2.10	-0.48	0.74	-1.06	0.32
7	NorthCape	0.46	0.84	0.04	0.36	0.42
8	NorthWest	1.79	1.91	-0.13	0.51	1.02
9	WesternCape	1.92	1.72	0.35	0.70	1.17
10	Total	1.69	0.93	-0.07	-0.21	0.58

4.1.3 Weighted education share

Table 18 shows the annual provincial share of people aged 5-17 and Table 19 show the provincial share of school enrolments. Each share presented in these tables contributes 50 per cent to the weighted educational share. Table 20, presents the weighted educational shares by province. The shares for 2015 -2019 are consistent with National Treasury shares. From 2020-2024, the shares are based on the forecast data.

Table 18. Share of people age 5-17 by province (%)

	Province	National Treasury					Forecast				
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	EasternCape	15.0	15.0	15.0	15.0	14.4	14.4	14.4	14.1	13.9	13.7
2	FreeState	5.3	5.3	5.3	5.3	5.3	5.2	5.2	5.1	5.1	5.0
3	Gauteng	18.0	18.0	18.0	18.0	19.1	19.2	19.2	19.7	20.1	20.3
4	KZN	22.3	22.3	22.3	22.3	21.9	21.8	21.8	21.8	21.7	21.8
5	Limpopo	12.4	12.4	12.4	12.4	12.1	12.1	12.2	12.1	12.0	11.9
6	Mpumalanga	8.5	8.5	8.5	8.5	8.4	8.4	8.4	8.4	8.3	8.3
7	NorthCape	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2
8	NorthWest	6.7	6.7	6.7	6.7	6.8	6.8	6.9	6.9	6.9	6.9
9	WesternCape	9.5	9.5	9.5	9.5	9.7	9.7	9.7	9.8	9.8	9.8
10	Total	100	100	100	100	100	100	100	100	100	100

Table 19. Share of school enrolment by province (%)

	Province	National Treasury					Forecast				
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	EasternCape	15.2	15.2	15.2	14.8	14.6	14.5	14.3	14.2	14.0	13.9
2	FreeState	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.5	5.5	5.5
3	Gauteng	17.3	17.6	17.9	18.2	18.4	18.6	18.9	19.1	19.4	19.7
4	KZN	22.8	22.5	22.3	22.3	22.2	22.0	21.9	21.7	21.5	21.4
5	Limpopo	13.7	13.7	13.7	13.7	13.6	13.6	13.6	13.6	13.6	13.6
6	Mpumalanga	8.4	8.4	8.3	8.4	8.3	8.3	8.3	8.2	8.2	8.2
7	NorthCape	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
8	NorthWest	6.4	6.4	6.4	6.4	6.5	6.5	6.5	6.5	6.6	6.6
9	WesternCape	8.5	8.6	8.6	8.7	8.7	8.8	8.8	8.9	8.9	9.0
10	Total	100	100	100	100	100	100	100	100	100	100

Table 20. Educational shares by province in the baseline, 2015-2024 (%)

	Province	National Treasury					Forecast				
		2015*	2016*	2017 [§]	2018 [§]	2019 [§]	2020	2021	2022	2023	2024
1	EasternCape	15.1	15.1	15.1	14.9	14.5	14.4	14.3	14.1	13.9	13.8
2	FreeState	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
3	Gauteng	17.7	17.8	18.0	18.1	18.7	18.9	19.0	19.4	19.7	20.0
4	KZN	22.5	22.4	22.3	22.3	22.0	21.9	21.8	21.7	21.6	21.6
5	Limpopo	13.0	13.1	13.0	13.1	12.9	12.9	12.9	12.8	12.8	12.7
6	Mpumalanga	8.5	8.5	8.4	8.4	8.4	8.3	8.3	8.3	8.3	8.3
7	NorthCape	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2
8	NorthWest	6.5	6.5	6.5	6.5	6.6	6.7	6.7	6.7	6.7	6.7
9	WesternCape	9.0	9.0	9.1	9.1	9.2	9.3	9.3	9.3	9.4	9.4
10	Total	100	100	100	100	100	100	100	100	100	100

* National Treasury, 2016: 17.

§ National Treasury, 2018: 19.

§ National Treasury, 2019: 17.

4.2 Health component

The provincial shares for the health component is a weighted average of 3 sub-components, namely:

1. the risk-adjusted sub-component which shows the number of people in each province with no medical aid insurance. This share contributes 75 per cent to the health component.
2. the number of visits to primary health care facilities. This share contributes 5 per cent to the health component.
3. each province's share of the total patient-day equivalents from public hospitals. This share contributes 20 per cent to the health component.

4.2.1 Risk-adjusted population

Three sets of information is required to determine the risk-adjusted weighted population, namely:

- mid-year population estimate;
- the percentage of insured population by region. This percentage is taken from the most up to date General Household Survey; and
- a risk-adjusted index.

Table 21 shows the total number of people in each province. For 2014 – 2018, the population numbers are from National Treasury. From 2019 to 2024, the mid-year population estimates are taken from Statistics South Africa (Statistics South Africa, 2019). Table 22 shows the annual growth rate in population by province.

Table 23 presents the percentage of people in each province with medical aid insurance. For year t, the percentage insured for year t-2 is used. For 2013 to 2017, we adopt the percentage insured from National Treasury. For 2018-2024, we use the average percentage over 2013-2017 to determine the percentage of insured people in each province. The final table is the risk-adjustment index, which is an index of each province's health risk profile. This index has remain constant over the past few years.

For 2015-2019, mid-year population data is based on observed values taken from National Treasury (National Treasury Annexure W1, 2015, 2016, 2017, 2018, 2019). From 2020 onwards, the mid-year population forecast is based on population estimates from Statistics South Africa (Statistics South Africa, 2019).

The percentage of people with medical aid insurance is adopted from the latest General Household Survey, lagged normally two years. For 2020 onwards, we do not have information on the number of people with medical aid insurance. We there for calculate an average share for each province based on the information in 2013-2017. We adopt this share for 2018-2024 to determine the number of people in each province with medical aid. In the absence of any further information, we assume that this share remains unchanged from 2018 onwards. The risk-adjustment share presented in Table xxx has remained constant over the last few years and therefore we assume these shares remain constant from 2020 onwards.

Table 21. Mid-year population ('000)

	Province	National Treasury					Forecast					
		2014 [*]	2015 [*]	2016 [†]	2017 [‡]	2018 [§]	2019	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
1	EasternCape	6,786.9	6,916.0	7,062.0	6,780.0	6,522.7	6,712	6,713	6,716	6,712	6,710	6,708
2	FreeState	2,786.8	2,818.0	2,862.0	2,864.0	2,954.3	2,887	2,898	2,908	2,918	2,928	2,939
3	Gauteng	12,914.8	13,200.0	13,498.0	13,888.0	14,717.0	15,176	15,545	15,907	16,272	16,633	16,995
4	KZN	10,694.4	10,919.0	11,080.0	11,077.0	11,384.7	11,289	11,412	11,533	11,654	11,772	11,890
5	Limpopo	5,630.5	5,727.0	5,804.0	5,791.0	5,797.3	5,983	6,028	6,075	6,114	6,155	6,198
6	Mpumalanga	4,229.3	4,284.0	4,328.0	4,386.0	4,523.9	4,592	4,663	4,732	4,799	4,864	4,928
7	NorthCape	1,166.7	1,186.0	1,192.0	1,203.0	1,225.6	1,264	1,279	1,294	1,307	1,321	1,334
8	NorthWest	3,676.3	3,707.0	3,791.0	3,823.0	3,979.0	4,027	4,092	4,153	4,216	4,278	4,339
9	WesternCape	6,116.3	6,200.0	6,293.0	6,402.0	6,621.1	6,844	6,967	7,088	7,212	7,338	7,465
10	Total	54,002.0	54,957.0	55,910.0	56,214.0	57,725.6	58,775.0	59,597.1	60,405.1	61,204.6	61,999.1	62,798.0

* National Treasury, 2015: 20.

† National Treasury, 2016: 18.

‡ National Treasury, 2017: 18.

§ National Treasury, 2018: 19.

¶ National Treasury, 2019: 17.

Table 22. Mid-year population growth rates

	Province	National Treasury					Forecast				
		2015 (a)	2016 (b)	2017 (c)	2018 (d)	2019 (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	1.90	2.11	-3.99	-3.79	2.91	0.02	0.04	-0.05	-0.04	-0.02
2	FreeState	1.12	1.56	0.07	3.15	-2.26	0.36	0.33	0.36	0.36	0.37
3	Gauteng	2.21	2.26	2.89	5.97	3.12	2.43	2.33	2.29	2.22	2.17
4	KZN	2.10	1.47	-0.03	2.78	-0.84	1.09	1.06	1.05	1.02	1.00
5	Limpopo	1.71	1.34	-0.22	0.11	3.20	0.75	0.78	0.65	0.67	0.70
6	Mpumalanga	1.29	1.03	1.34	3.14	1.51	1.54	1.48	1.42	1.36	1.32
7	NorthCape	1.65	0.51	0.92	1.87	3.13	1.22	1.12	1.07	1.03	1.02
8	NorthWest	0.84	2.27	0.84	4.08	1.21	1.61	1.50	1.50	1.46	1.44
9	WesternCape	1.37	1.50	1.73	3.42	3.37	1.80	1.73	1.75	1.74	1.74
10	Total	1.77	1.73	0.54	2.69	1.82	1.40	1.36	1.32	1.30	1.29

Table 23. Percentage of people with medical aid insurance, 2013-2024 (%)

	Province	2013*	2014*	2015 ^β	2016 ^γ	2017 ^δ	2018-2024
		(a)	(b)	(c)	(d)	(e)	(f)
1	EasternCape	10.5	10.5	10.7	9.6	9.9	10.24
2	FreeState	17.1	17.9	16.2	16.7	14.9	16.56
3	Gauteng	29.3	28.2	27.7	27.6	25.0	27.56
4	KZN	13.3	12.9	11.9	11.9	12.6	12.52
5	Limpopo	9.0	8.6	8.5	9.0	8.3	8.68
6	Mpumalanga	15.6	14.9	15.5	14.3	13.9	14.84
7	NorthCape	20.2	19.8	17.6	15.4	16.3	17.86
8	NorthWest	15.6	14.8	15.0	15.4	15.5	15.26
9	WesternCape	25.7	26.3	24.2	24.7	24.8	25.14

* National Treasury, 2015: 20.

z National Treasury, 2016: 18.

β National Treasury, 2017: 18.

γ National Treasury, 2018: 19.

δ National Treasury, 2019: 17.

Table 24. Risk-adjustment index

	Province	2015*	2016*	2017 ^β	2018 ^γ	2019 ^δ	2020-2024
		(a)	(b)	(c)	(d)	(e)	(f)
1	EasternCape	96.9	96.9	96.9	96.9	96.9	96.9
2	FreeState	103.3	103.3	103.3	103.3	103.3	103.3
3	Gauteng	105.4	105.4	105.4	105.4	105.4	105.4
4	KZN	98.9	98.9	98.9	98.9	98.9	98.9
5	Limpopo	91.6	91.6	91.6	91.6	91.6	91.6
6	Mpumalanga	95.7	95.7	95.7	95.7	95.7	95.7
7	NorthCape	100.7	100.7	100.7	100.7	100.7	100.7
8	NorthWest	102.2	102.2	102.2	102.2	102.2	102.2
9	WesternCape	104.0	104.0	104.0	104.0	104.0	104.0

* National Treasury, 2015: 20.

z National Treasury, 2016: 18.

β National Treasury, 2017: 18.

γ National Treasury, 2018: 19.

δ National Treasury, 2019: 17.

Given the information in Tables 21 and 23, we calculate the share of people in each province with medical aid insurance. Equations (E.51) and (E.52) shows the calculation for the number of insured and uninsured persons for 2015.

$$\text{INSURE}_{2015} = \text{POP_L}_{2014} \times \text{SHR_INS}_{2013} \quad (\text{E.51})$$

$$\text{UNINSURE}_{2015} = \text{POP_L}_{2014} - \text{INSURE}_{2015} \quad (\text{E.52})$$

The results from (E.51) and (E.52) are presented in Table 25 and Table 26. The number of uninsured people adjusted for by a risk-adjustment factor-which is presented in Table 27.

$$\text{RISK_ADJ}_{2015} = \text{UNINSURE}_{2015} \times \text{RISK_FACTOR}_{2015} \quad (\text{E.53})$$

Table 27 shows that risk-adjusted population. It is from the risk adjusted weighted population that the first set of shares, contributing 75 per cent to the health component, is calculated. Table 28 presents these shares. The values calculated for 2015-2019 are consistent with the calculations from the National Treasury. From 2020 onwards, the data and shares are based on the forecast data.

Table 25. Number of insured people by province, 2015-2024 ('000)

	Province	National Treasury					Forecast				
		2015 (a)	2016 (b)	2017 (c)	2018 (d)	2019 (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	713	726	756	651	646	687	687	688	687	687
2	FreeState	477	504	464	478	440	478	480	482	483	485
3	Gauteng	3,784	3,722	3,739	3,833	3,679	4,183	4,284	4,384	4,485	4,584
4	KZN	1,422	1,409	1,319	1,318	1,434	1,413	1,429	1,444	1,459	1,474
5	Limpopo	507	493	493	521	481	519	523	527	531	534
6	Mpumalanga	660	638	671	627	629	681	692	702	712	722
7	NorthCape	236	235	210	185	200	226	228	231	234	236
8	NorthWest	574	549	569	589	617	615	624	634	643	653
9	WesternCape	1,572	1,631	1,523	1,581	1,642	1,721	1,752	1,782	1,813	1,845
10	Total	9,943	9,906	9,742	9,784	9,768	10,523	10,700	10,873	11,047	11,219

Table 26. Number of people with no medical insurance by province, 2015-2024 ('000)

	Province	National Treasury					Forecast				
		2015 (a)	2016 (b)	2017 (c)	2018 (d)	2019 (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	6,074	6,190	6,306	6,129	5,877	6,025	6,026	6,028	6,025	6,023
2	FreeState	2,310	2,314	2,398	2,386	2,514	2,409	2,418	2,426	2,435	2,443
3	Gauteng	9,131	9,478	9,759	10,055	11,038	10,994	11,261	11,523	11,787	12,049
4	KZN	9,272	9,510	9,761	9,759	9,950	9,876	9,983	10,089	10,195	10,298
5	Limpopo	5,124	5,234	5,311	5,270	5,316	5,463	5,504	5,547	5,584	5,621
6	Mpumalanga	3,570	3,646	3,657	3,759	3,895	3,911	3,971	4,030	4,087	4,142
7	NorthCape	931	951	982	1,018	1,026	1,038	1,051	1,063	1,074	1,085
8	NorthWest	3,103	3,158	3,222	3,234	3,362	3,413	3,468	3,520	3,572	3,625
9	WesternCape	4,544	4,569	4,770	4,821	4,979	5,124	5,216	5,306	5,399	5,493
10	Total	44,059	45,051	46,168	46,430	47,957	48,252	48,897	49,532	50,158	50,780

Table 27. Risk-adjusted weighted population, 2015-2024 ('000)

	Province	National Treasury					Forecast				
		2015 (a)	2016 (b)	2017 (c)	2018 (d)	2019 (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	5,886	5,998	6,111	5,939	5,695	5,838	5,839	5,841	5,838	5,836
2	FreeState	2,386	2,390	2,478	2,464	2,597	2,489	2,498	2,506	2,515	2,524
3	Gauteng	9,624	9,989	10,286	10,598	11,634	11,587	11,869	12,145	12,424	12,700
4	KZN	9,170	9,406	9,654	9,651	9,841	9,767	9,873	9,978	10,083	10,185
5	Limpopo	4,693	4,795	4,865	4,827	4,870	5,004	5,042	5,081	5,115	5,149
6	Mpumalanga	3,416	3,489	3,500	3,597	3,728	3,743	3,800	3,856	3,911	3,964
7	NorthCape	938	958	989	1,025	1,033	1,045	1,058	1,070	1,081	1,093
8	NorthWest	3,171	3,228	3,293	3,305	3,436	3,488	3,544	3,597	3,651	3,705
9	WesternCape	4,726	4,752	4,961	5,014	5,178	5,329	5,424	5,518	5,615	5,713
10	Total	44,011	45,005	46,136	46,421	48,011	48,290	48,948	49,594	50,233	50,868

Table 28. Risk-adjusted shares, 2015-2024 (%)

	Province	National Treasury					Forecast				
		2015* (a)	2016* (b)	2017 ^β (c)	2018 ^β (d)	2019 ^δ (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	13.4	13.3	13.2	12.8	11.9	12.1	11.9	11.8	11.6	11.5
2	FreeState	5.4	5.3	5.4	5.3	5.4	5.2	5.1	5.1	5.0	5.0
3	Gauteng	21.9	22.2	22.3	22.8	24.2	24.0	24.2	24.5	24.7	25.0
4	KZN	20.8	20.9	20.9	20.8	20.5	20.2	20.2	20.1	20.1	20.0
5	Limpopo	10.7	10.7	10.5	10.4	10.1	10.4	10.3	10.2	10.2	10.1
6	Mpumalanga	7.8	7.8	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8
7	NorthCape	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1
8	NorthWest	7.2	7.2	7.1	7.1	7.2	7.2	7.2	7.3	7.3	7.3
9	WesternCape	10.7	10.6	10.8	10.8	10.8	11.0	11.1	11.1	11.2	11.2
10	Total	100	100	100	100	100	100	100	100	100	100

* National Treasury, 2016: 18.

^β National Treasury, 2018: 19.

^δ National Treasury, 2019: 17.

4.2.2 Primary health care visits

Table 29 shows the number of primary healthcare visits for 2013-2024. For 2013-2018, the numbers are adopted from National Treasury. For 2019 to 2024, we do not have data on the number of future primary healthcare visit. For this period, we allow the number of visit to move in line with the population growth in each province. These population growth rates are presented in Table 22, columns (f) to (k). Given these population growth rates, we can forecast the number of primary health care visits from 2019 to 2024.

The annual share for year t is based on the average primary health care visits in year t-1 and t-2. The average number of health care visits are shown in Table 30 and the shares in Table 31. Over all these shares contributes 5 per cent to the weighted health share.

Table 29. Number of primary health care visits, 2013-2024 ('000)

	Province	National Treasury					Forecast						
		2013*	2014*	2015 [§]	2016 [§]	2017*	2018*	2019	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
1	EasternCape	17,725	17,379	17,907	18,208	18,116	16,418	16,895	16,898	16,905	16,896	16,889	16,886
2	FreeState	7,488	6,894	6,792	6,537	6,170	5,462	5,338	5,358	5,376	5,395	5,414	5,434
3	Gauteng	23,084	23,647	23,743	22,099	22,037	21,132	21,791	22,321	22,840	23,365	23,883	24,402
4	KZN	31,112	31,885	31,233	30,872	29,211	28,403	28,164	28,470	28,773	29,074	29,369	29,664
5	Limpopo	14,330	14,256	14,343	14,356	15,269	14,858	15,333	15,449	15,569	15,671	15,776	15,886
6	Mpumalanga	9,056	9,143	9,483	9,309	9,449	9,160	9,298	9,442	9,581	9,717	9,849	9,979
7	NorthCape	3,413	3,398	3,308	2,992	2,989	2,689	2,773	2,807	2,838	2,869	2,898	2,928
8	NorthWest	7,890	8,047	8,364	8,154	8,010	7,455	7,545	7,667	7,782	7,899	8,014	8,130
9	WesternCape	14,859	14,308	14,257	14,151	14,413	14,140	14,617	14,879	15,137	15,402	15,670	15,943
10	Total	128,957	128,957	129,430	126,678	125,664	119,717	121,755	123,290	124,801	126,286	127,763	129,251

* National Treasury, 2015: 21.

[§] National Treasury, 2017: 19.

[§] National Treasury, 2019: 18.

Table 30. Average number of primary health care visits, 2015-2024 ('000)

	Province	National Treasury					Forecast				
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	EasternCape	17,552.0	17,643.0	18,057.5	18,162.0	17,267.0	16,656.5	16,896.6	16,901.3	16,900.1	16,892.3
2	FreeState	7,191.0	6,843.0	6,664.5	6,353.5	5,816.0	5,400.2	5,348.1	5,366.7	5,385.2	5,404.4
3	Gauteng	23,365.5	23,695.0	22,921.0	22,068.0	21,584.5	21,461.6	22,055.9	22,580.6	23,102.5	23,624.0
4	KZN	31,498.5	31,559.0	31,052.5	30,041.5	28,807.0	28,283.7	28,317.3	28,621.7	28,923.6	29,221.8
5	Limpopo	14,293.0	14,299.5	14,349.5	14,812.5	15,063.5	15,095.5	15,390.8	15,508.8	15,619.8	15,723.2
6	Mpumalanga	9,099.5	9,313.0	9,396.0	9,379.0	9,304.5	9,229.2	9,370.0	9,511.3	9,648.8	9,782.7
7	NorthCape	3,405.5	3,353.0	3,150.0	2,990.5	2,839.0	2,731.0	2,789.9	2,822.5	2,853.5	2,883.5
8	NorthWest	7,968.5	8,205.5	8,259.0	8,082.0	7,732.5	7,500.2	7,606.0	7,724.3	7,840.4	7,956.6
9	WesternCape	14,583.5	14,282.5	14,204.0	14,282.0	14,276.5	14,378.3	14,747.9	15,008.2	15,269.6	15,536.2
10	Total	128,957	129,194	128,054	126,171	122,691	120,736	122,522	124,045	125,544	127,025

Table 31. Primary health care shares (%)

	Province	National Treasury					Forecast				
		2015*	2016 ^z	2017 [§]	2018 ^γ	2019 [§]	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	EasternCape	13.6	13.7	14.1	14.4	14.1	13.8	13.8	13.6	13.5	13.3
2	FreeState	5.6	5.3	5.2	5.0	4.7	4.5	4.4	4.3	4.3	4.3
3	Gauteng	18.1	18.3	17.9	17.5	17.6	17.8	18.0	18.2	18.4	18.6
4	KZN	24.4	24.4	24.2	23.8	23.5	23.4	23.1	23.1	23.0	23.0
5	Limpopo	11.1	11.1	11.2	11.7	12.3	12.5	12.6	12.5	12.4	12.4
6	Mpumalanga	7.1	7.2	7.3	7.4	7.6	7.6	7.6	7.7	7.7	7.7
7	NorthCape	2.6	2.6	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3
8	NorthWest	6.2	6.4	6.4	6.4	6.3	6.2	6.2	6.2	6.2	6.3
9	WesternCape	11.3	11.1	11.1	11.3	11.6	11.9	12.0	12.1	12.2	12.2
10	Total	100	100	100	100	100	100	100	100	100	100

* National Treasury, 2015: 21.

^z National Treasury, 2016: 18.

[§] National Treasury, 2017: 18.

^γ National Treasury, 2018: 19.

[§] National Treasury, 2019: 18.

4.2.3 Hospital workload

The final sub-component relates to each provinces share of the hospital patient-day equivalent from public hospitals. National Treasury use the average hospital workload for each province from the District Health Information Services database. Table 32 shows the workload from public hospitals for 2013 to 2024. For 2013 to 2018, the data is consistent with National Treasury data. We do not have information on future workloads, and therefore allow future workload to move in line with the population growth in each province. Based on these growth rates, we can forecast the provincial workload from 2019 to 2024.

The annual workload share for year t is based on the average workload in year t-1 and t-2. Table 33 shows the annual average workload and the shares calculated from this data is presented in Table 34. The shares for 2015 to 2019 are consistent with National Treasury data. Over all these shares contributes 20 per cent to the weighted health share.

Table 32. Provincial workload, 2013-2024 ('000)

	Province	National Treasury					Forecast						
		2013* (a)	2014* (b)	2015 [§] (c)	2016 [§] (d)	2017* (e)	2018* (f)	2019 (g)	2020 (h)	2021 (i)	2022 (j)	2023 (k)	2024 (l)
1	EasternCape	4,523	4,572	4,637	4,567	5,531	4,328	4,454	4,455	4,456	4,454	4,452	4,451
2	FreeState	1,824	1,736	1,706	1,571	1,925	1,976	1,931	1,938	1,945	1,952	1,959	1,966
3	Gauteng	6,611	6,722	6,701	6,934	8,931	7,315	7,543	7,726	7,906	8,088	8,267	8,447
4	KZN	8,112	7,995	7,911	7,613	9,117	7,055	6,996	7,072	7,147	7,222	7,295	7,368
5	Limpopo	2,898	2,922	2,883	2,949	3,644	3,014	3,110	3,134	3,158	3,179	3,200	3,222
6	Mpumalanga	1,819	1,931	1,963	1,979	2,491	1,992	2,022	2,053	2,084	2,113	2,142	2,170
7	NorthCape	514	526	595	599	761	563	581	588	594	601	607	613
8	NorthWest	1,578	1,674	1,721	1,642	2,037	1,573	1,592	1,618	1,642	1,667	1,691	1,715
9	WesternCape	4,196	4,283	4,341	4,409	5,431	4,344	4,490	4,571	4,650	4,732	4,814	4,898
10	Total	32,075	32,361	32,458	32,263	39,868	32,160	32,719	33,154	33,583	34,006	34,427	34,851

* National Treasury, 2015: 21.

[§] National Treasury, 2017: 19.

[§] National Treasury, 2019: 18.

Table 33. Average workload, 2015-2024 ('000)

	Province	National Treasury					Forecast				
		2015 (a)	2016 (b)	2017 (c)	2018 (d)	2019 (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	4,548	4,605	4,602	5,049	4,930	4,391	4,454	4,455	4,455	4,453
2	FreeState	1,780	1,721	1,639	1,748	1,951	1,954	1,935	1,942	1,948	1,955
3	Gauteng	6,667	6,712	6,818	7,933	8,123	7,429	7,635	7,816	7,997	8,178
4	KZN	8,054	7,953	7,762	8,365	8,086	7,025	7,034	7,109	7,184	7,258
5	Limpopo	2,910	2,903	2,916	3,297	3,329	3,062	3,122	3,146	3,169	3,190
6	Mpumalanga	1,875	1,947	1,971	2,235	2,242	2,007	2,038	2,068	2,098	2,127
7	NorthCape	520	561	597	680	662	572	584	591	597	604
8	NorthWest	1,626	1,698	1,682	1,840	1,805	1,583	1,605	1,630	1,654	1,679
9	WesternCape	4,240	4,312	4,375	4,920	4,888	4,417	4,531	4,611	4,691	4,773
10	Total	32,218	32,410	32,361	36,066	36,014	32,440	32,937	33,369	33,794	34,217

Table 34. Workload shares (%)

	Province	National Treasury					Forecast				
		2015* (a)	2016 ^z (b)	2017 ^z (c)	2018 ^z (d)	2019 ^z (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	14.1	14.2	14.2	14.0	13.7	13.5	13.5	13.4	13.2	13.0
2	FreeState	5.5	5.3	5.1	4.8	5.4	6.0	5.9	5.8	5.8	5.7
3	Gauteng	20.7	20.7	21.1	22.0	22.6	22.9	23.2	23.4	23.7	23.9
4	KZN	25.0	24.5	24.0	23.2	22.5	21.7	21.4	21.3	21.3	21.2
5	Limpopo	9.0	9.0	9.0	9.1	9.2	9.4	9.5	9.4	9.4	9.3
6	Mpumalanga	5.8	6.0	6.1	6.2	6.2	6.2	6.2	6.2	6.2	6.2
7	NorthCape	1.6	1.7	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8
8	NorthWest	5.0	5.2	5.2	5.1	5.0	4.9	4.9	4.9	4.9	4.9
9	WesternCape	13.2	13.3	13.5	13.6	13.6	13.6	13.8	13.8	13.9	13.9
10	Total	100	100	100	100	100	100	100	100	100	100

* National Treasury, 2015: 21.

^z National Treasury, 2016: 18.

^z National Treasury, 2017: 18.

^z National Treasury, 2018: 19.

^z National Treasury, 2019: 18.

4.2.4 Health component weighted shares

The health component shares are a weighted average of the risk-adjustment (Table 28), primary health care visit (Table 31) and workload shares (Table 34). The risk-adjustment shares contributes 75 per cent to the weighted share, while the health care visit and workload shares contribute 5 and 20 per cent respectively. The weighted health component shares are presented in Table 35. The shares for 2015-2019 are consistent with the National Treasury. From 2020 onwards, the shares are based on provincial population forecasts.

These shares contributes 27 per cent to each provinces equitable share.

Table 35. Health component shares (%)

	Province	National Treasury					Forecast				
		2015*	2016*	2017 ^β	2018 ^β	2019 ^δ	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	EasternCape	13.5	13.5	13.5	13.1	12.3	12.5	12.3	12.2	12.0	11.9
2	FreeState	5.5	5.3	5.3	5.2	5.4	5.3	5.2	5.2	5.1	5.1
3	Gauteng	21.4	21.7	21.8	22.4	23.6	23.5	23.7	24.0	24.2	24.4
4	KZN	21.8	21.8	21.7	21.4	21.0	20.7	20.6	20.5	20.5	20.4
5	Limpopo	10.4	10.3	10.3	10.2	10.1	10.3	10.2	10.2	10.1	10.1
6	Mpumalanga	7.3	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.5	7.5
7	NorthCape	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1
8	NorthWest	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.8
9	WesternCape	11.3	11.1	11.3	11.4	11.4	11.6	11.7	11.7	11.8	11.8
10	Total	100	100	100	100	100	100	100	100	100	100

* National Treasury, 2016: 19.

^β National Treasury, 2018: 20.

^δ National Treasury, 2019: 18.

4.3 Basic component

The basic component is based on the proportion of each province's share of the national population. This share contributes 16 per cent to each province's equitable shares. Table 21 shows the total number of people in each province. From this table we calculate the proportion of each province's share in total population. These shares are presented in Table 36.

Table 36. Basic share by province (%)

	Province	National Treasury					Forecast				
		2015*	2016*	2017 ^β	2018 ^β	2019 ^δ	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	EasternCape	12.6	12.6	12.6	12.1	11.3	11.4	11.3	11.1	11.0	10.8
2	FreeState	5.2	5.1	5.1	5.1	5.1	4.9	4.9	4.8	4.8	4.7
3	Gauteng	23.9	24.0	24.1	24.7	25.5	25.8	26.1	26.3	26.6	26.8
4	KZN	19.8	19.9	19.8	19.7	19.7	19.2	19.1	19.1	19.0	19.0
5	Limpopo	10.4	10.4	10.4	10.3	10.0	10.2	10.1	10.1	10.0	9.9
6	Mpumalanga	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
7	NorthCape	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1
8	NorthWest	6.8	6.7	6.8	6.8	6.9	6.9	6.9	6.9	6.9	6.9
9	WesternCape	11.3	11.3	11.3	11.4	11.5	11.6	11.7	11.7	11.8	11.8
10	Total	100	100	100	100	100	100	100	100	100	100

* National Treasury, 2016: 19.

^β National Treasury, 2018: 21.

^δ National Treasury, 2019: 19.

4.4 Poverty component

The poverty component introduces a redistributive element to the formula and is assigned a weight of 3 per cent of the total equitable share calculation.

The poor population includes people who fall in the lowest 40 per cent of household income in the 2010/11 Income and Expenditure Survey (IES). The size of the poor population in each province is calculated by multiplying the proportion of poor in that province with the population figure for the

previous year. In the National Treasury calculations, the share of the poor population remains constant at the shares in the 2010/11 IES.

Table 37, columns (b) to (l) shows the number of people in each province. The proportion of people who fall in the lowest 40 per cent of household income is presented in Table 37, column (a).

The size of the poor population in each province is presented in Table 38 and is calculated by multiplying the population in the previous year with the proportion of poor in each province. The provincial share of poor population is presented in Table 39. The shares for 2015 – 2019 are consistent with the National Treasury shares for these years.

Table 37. Population by province ('000)

	Province	Income and Expenditure Survey 2010/11	National Treasury					Forecast					
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
1	EasternCape	52.0	6,787	6,916	7,062	6,780	6,523	6,712	6,713	6,716	6,712	6,710	6,708
2	FreeState	41.4	2,787	2,818	2,862	2,864	2,954	2,887	2,898	2,908	2,918	2,928	2,939
3	Gauteng	28.9	12,915	13,200	13,498	13,888	14,717	15,176	15,545	15,907	16,272	16,633	16,995
4	KZN	45.3	10,694	10,919	11,080	11,077	11,385	11,289	11,412	11,533	11,654	11,772	11,890
5	Limpopo	52.9	5,631	5,727	5,804	5,791	5,797	5,983	6,028	6,075	6,114	6,155	6,198
6	Mpumalanga	47.3	4,229	4,284	4,328	4,386	4,524	4,592	4,663	4,732	4,799	4,864	4,928
7	NorthCape	40.8	1,167	1,186	1,192	1,203	1,226	1,264	1,279	1,294	1,307	1,321	1,334
8	NorthWest	47.9	3,676	3,707	3,791	3,823	3,979	4,027	4,092	4,153	4,216	4,278	4,339
9	WesternCape	21.9	6,116	6,200	6,293	6,402	6,621	6,844	6,967	7,088	7,212	7,338	7,465
10	Total		54,002	54,957	55,910	56,214	57,726	58,775	59,597	60,405	61,205	61,999	62,798

Table 38. Number of poor per region ('000)

	Province	National Treasury					Forecast				
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	EasternCape	3,529	3,596	3,672	3,526	3,392	3,490	3,491	3,492	3,490	3,489
2	FreeState	1,154	1,167	1,185	1,186	1,223	1,195	1,200	1,204	1,208	1,212
3	Gauteng	3,732	3,815	3,901	4,014	4,253	4,386	4,492	4,597	4,703	4,807
4	KZN	4,845	4,946	5,019	5,018	5,157	5,114	5,169	5,224	5,279	5,333
5	Limpopo	2,979	3,030	3,070	3,063	3,067	3,165	3,189	3,214	3,234	3,256
6	Mpumalanga	2,000	2,026	2,047	2,075	2,140	2,172	2,206	2,238	2,270	2,301
7	NorthCape	476	484	486	491	500	516	522	528	533	539
8	NorthWest	1,761	1,776	1,816	1,831	1,906	1,929	1,960	1,990	2,019	2,049
9	WesternCape	1,339	1,358	1,378	1,402	1,450	1,499	1,526	1,552	1,579	1,607
10	Total	21,815	22,197	22,575	22,605	23,088	23,466	23,755	24,039	24,317	24,593

Table 39. Poverty share by province (%)

	Province	National Treasury					Forecast				
		2015*	2016*	2017 ^β	2018 ^β	2019 ^δ	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	EasternCape	16.2	16.2	16.3	15.6	14.7	14.9	14.7	14.5	14.4	14.2
2	FreeState	5.3	5.3	5.2	5.2	5.3	5.1	5.1	5.0	5.0	4.9
3	Gauteng	17.1	17.2	17.3	17.8	18.4	18.7	18.9	19.1	19.3	19.5
4	KZN	22.2	22.3	22.2	22.2	22.3	21.8	21.8	21.7	21.7	21.7
5	Limpopo	13.7	13.6	13.6	13.6	13.3	13.5	13.4	13.4	13.3	13.2
6	Mpumalanga	9.2	9.1	9.1	9.2	9.3	9.3	9.3	9.3	9.3	9.4
7	NorthCape	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
8	NorthWest	8.1	8.0	8.0	8.1	8.3	8.2	8.3	8.3	8.3	8.3
9	WesternCape	6.1	6.1	6.1	6.2	6.3	6.4	6.4	6.5	6.5	6.5
10	Total	100	100	100	100	100	100	100	100	100	100

* National Treasury, 2016: 19.

^β National Treasury, 2018: 22.

^δ National Treasury, 2019: 19.

4.5 Institutional component

The institutional components recognises that some costs associated with running a provincial government is not related to the size of the province's population or any other factors that might impact other components. Therefore it is distributed equally between provinces and contributes 5 per cent to the provincial equitable share. Each province is assigned a share of 11.1 per cent.

4.6 Economic activity component

This component is a proxy for provincial tax capacity and expenditure assignments. Given that these assignments are relatively small, this component is assigned a weight of 1 per cent. The growth in economic activity is based on the annual growth in provincial GDP.

Table 40 shows provincial GDP, in million Rand for 2012 to 2021. To calculate the economic activity share for year t, National Treasury use GDP for year t-3. Thus, for 2015 shares, the 2012 GDP values are used. The GDP values for 2012 to 2016 are adopted from National Treasury. From 2017 onwards, GDP grows at an average growth rate. This average GDP growth rate is based on growth in GDP between 2012 to 2016.

The economic activity shares are based on Table xxx and summarised in Table XX.

Table 40. Provincial GDP (R million)

	Province	National Treasury					Forecast				
		2012*	2013*	2014 ^β	2015 ^β	2016 ^δ	2017	2018	2019	2020	2021
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	EasternCape	234,536	272,714	290,581	315,603	331,093	360,899	393,387	428,801	467,402	509,478
2	FreeState	162,601	179,776	189,183	205,350	217,849	234,376	252,157	271,288	291,869	314,012
3	Gauteng	1,089,535	1,194,144	1,309,552	1,382,096	1,507,082	1,634,409	1,772,494	1,922,245	2,084,647	2,260,771
4	KZN	496,431	565,226	615,607	649,124	692,222	752,215	817,408	888,250	965,232	1,048,887
5	Limpopo	223,090	256,896	271,725	289,940	311,686	338,865	368,414	400,539	435,466	473,439
6	Mpumalanga	222,149	269,863	286,295	305,016	323,722	355,676	390,783	429,357	471,737	518,301
7	NorthCape	70,203	71,142	80,149	85,282	90,883	96,943	103,406	110,301	117,655	125,499
8	NorthWest	201,736	239,020	249,724	264,616	279,733	303,552	329,400	357,449	387,886	420,915
9	WesternCape	438,700	485,545	519,790	552,732	596,043	643,510	694,756	750,084	809,818	874,309
10	Total	3,138,981	3,534,326	3,812,606	4,049,759	4,350,313	4,720,125	5,122,206	5,558,313	6,031,713	6,545,610

* National Treasury, 2016: 20.

^β National Treasury, 2018: 22.

^δ National Treasury, 2019: 19.

Table 41. Economic activity component shares (%)

	Province	National Treasury					Forecast				
		2015*	2016 ^β	2017 ^β	2018 ^δ	2019 ^δ	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	EasternCape	7.5	7.7	7.6	7.8	7.6	7.6	7.7	7.7	7.7	7.8
2	FreeState	5.2	5.1	5.0	5.1	5.0	5.0	4.9	4.9	4.8	4.8
3	Gauteng	34.7	33.8	34.3	34.1	34.6	34.6	34.6	34.6	34.6	34.5
4	KZN	15.8	16.0	16.1	16.0	15.9	15.9	16.0	16.0	16.0	16.0
5	Limpopo	7.1	7.3	7.1	7.2	7.2	7.2	7.2	7.2	7.2	7.2
6	Mpumalanga	7.1	7.6	7.5	7.5	7.4	7.5	7.6	7.7	7.8	7.9
7	NorthCape	2.2	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	1.9
8	NorthWest	6.4	6.8	6.5	6.5	6.4	6.4	6.4	6.4	6.4	6.4
9	WesternCape	14.0	13.7	13.6	13.6	13.7	13.6	13.6	13.5	13.4	13.4
10	Total	100	100	100	100	100	100	100	100	100	100

* National Treasury, 2016: 20.

^β National Treasury, 2018: 22.

^δ National Treasury, 2019: 19.

4.7 Summary of the equitable share structure

Below we present the components of the equitable shares by province as well as the weighted average of the PES. The formula components are:

- Education component and is assigned a weight of 48 per cent.
- Health component and is assigned a weight of 27 per cent.
- Basic component and is assigned a weight of 16 per cent.
- Institutional component and is assigned a weight of 5 per cent.
- Poverty component and is assigned a weight of 3 per cent.
- Economic activity component and is assigned a weight of 1 per cent.

Table 48 shows the distribution of the equitable shares by province for 2015 – 2024.

Table 42. Educational shares by province, 2015-2024 (%)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	EasternCape	15.1	15.1	15.1	14.9	14.5	14.4	14.3	14.1	13.9	13.8
2	FreeState	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
3	Gauteng	17.7	17.8	18.0	18.1	18.7	18.9	19.0	19.4	19.7	20.0
4	KZN	22.5	22.4	22.3	22.3	22.0	21.9	21.8	21.7	21.6	21.6
5	Limpopo	13.0	13.1	13.0	13.1	12.9	12.9	12.9	12.8	12.8	12.7
6	Mpumalanga	8.5	8.5	8.4	8.4	8.4	8.3	8.3	8.3	8.3	8.3
7	NorthCape	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2
8	NorthWest	6.5	6.5	6.5	6.5	6.6	6.7	6.7	6.7	6.7	6.7
9	WesternCape	9.0	9.0	9.1	9.1	9.2	9.3	9.3	9.3	9.4	9.4
10	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 43. Health component shares, 2015-2024 (%)

	Province	2015 (a)	2016 (b)	2017 (c)	2018 (d)	2019 (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	13.5	13.5	13.5	13.1	12.3	12.5	12.3	12.2	12.0	11.9
2	FreeState	5.5	5.3	5.3	5.2	5.4	5.3	5.2	5.2	5.1	5.1
3	Gauteng	21.4	21.7	21.8	22.4	23.6	23.5	23.7	24.0	24.2	24.4
4	KZN	21.8	21.8	21.7	21.4	21.0	20.7	20.6	20.5	20.5	20.4
5	Limpopo	10.4	10.3	10.3	10.2	10.1	10.3	10.3	10.2	10.1	10.1
6	Mpumalanga	7.3	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.5	7.5
7	NorthCape	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1
8	NorthWest	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.8
9	WesternCape	11.3	11.1	11.3	11.4	11.4	11.6	11.7	11.7	11.8	11.8
10	Total	100	100	100	100	100	100	100	100	100	100

Table 44. Basic share by province, 2015-2024 (%)

	Province	2015 (a)	2016 (b)	2017 (c)	2018 (d)	2019 (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	12.6	12.6	12.6	12.1	11.3	11.4	11.3	11.1	11.0	10.8
2	FreeState	5.2	5.1	5.1	5.1	5.1	4.9	4.9	4.8	4.8	4.7
3	Gauteng	23.9	24.0	24.1	24.7	25.5	25.8	26.1	26.3	26.6	26.8
4	KZN	19.8	19.9	19.8	19.7	19.7	19.2	19.1	19.1	19.0	19.0
5	Limpopo	10.4	10.4	10.4	10.3	10.0	10.2	10.1	10.1	10.0	9.9
6	Mpumalanga	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
7	NorthCape	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1
8	NorthWest	6.8	6.7	6.8	6.8	6.9	6.9	6.9	6.9	6.9	6.9
9	WesternCape	11.3	11.3	11.3	11.4	11.5	11.6	11.7	11.7	11.8	11.8
10	Total	100	100	100	100	100	100	100	100	100	100

Table 45. Poverty share by province, 2015-2024 (%)

	Province	2015 (a)	2016 (b)	2017 (c)	2018 (d)	2019 (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	16.2	16.2	16.3	15.6	14.7	14.9	14.7	14.5	14.4	14.2
2	FreeState	5.3	5.3	5.2	5.2	5.3	5.1	5.1	5.0	5.0	4.9
3	Gauteng	17.1	17.2	17.3	17.8	18.4	18.7	18.9	19.1	19.3	19.5
4	KZN	22.2	22.3	22.2	22.2	22.3	21.8	21.8	21.7	21.7	21.7
5	Limpopo	13.7	13.6	13.6	13.6	13.3	13.5	13.4	13.4	13.3	13.2
6	Mpumalanga	9.2	9.1	9.1	9.2	9.3	9.3	9.3	9.3	9.3	9.4
7	NorthCape	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
8	NorthWest	8.1	8.0	8.0	8.1	8.3	8.2	8.3	8.3	8.3	8.3
9	WesternCape	6.1	6.1	6.1	6.2	6.3	6.4	6.4	6.5	6.5	6.5
10	Total	100	100	100	100	100	100	100	100	100	100

Table 46. Institutional share by province, 2015-2024 (%)

	Province	2015 (a)	2016 (b)	2017 (c)	2018 (d)	2019 (e)	2020 (f)	2021 (g)	2022 (h)	2023 (i)	2024 (j)
1	EasternCape	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
2	FreeState	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
3	Gauteng	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
4	KZN	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
5	Limpopo	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
6	Mpumalanga	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
7	NorthCape	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
8	NorthWest	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
9	WesternCape	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
10	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 47. Economic activity component shares, 2015-2024 (%)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	EasternCape	7.5	7.7	7.6	7.8	7.6	7.6	7.7	7.7	7.7	7.8
2	FreeState	5.2	5.1	5.0	5.1	5.0	5.0	4.9	4.9	4.8	4.8
3	Gauteng	34.7	33.8	34.3	34.1	34.6	34.6	34.6	34.6	34.6	34.5
4	KZN	15.8	16.0	16.1	16.0	15.9	15.9	16.0	16.0	16.0	16.0
5	Limpopo	7.1	7.3	7.1	7.2	7.2	7.2	7.2	7.2	7.2	7.2
6	Mpumalanga	7.1	7.6	7.5	7.5	7.4	7.5	7.6	7.7	7.8	7.9
7	NorthCape	2.2	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	1.9
8	NorthWest	6.4	6.8	6.5	6.5	6.4	6.4	6.4	6.4	6.4	6.4
9	WesternCape	14.0	13.7	13.6	13.6	13.7	13.6	13.6	13.5	13.4	13.4
10	Total	100	100	100	100	100	100	100	100	100	100

Table 48. Weighted average of the equitable share formula, 2015-2024 (%)

	Province	National Treasury					Forecast				
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	EasternCape	14.04	14.04	14.02	13.71	13.18	13.20	13.09	12.92	12.76	12.61
2	FreeState	5.62	5.57	5.57	5.55	5.60	5.53	5.50	5.47	5.43	5.40
3	Gauteng	19.52	19.66	19.80	20.12	20.87	21.00	21.19	21.48	21.75	21.98
4	KZN	21.27	21.20	21.11	21.01	20.80	20.55	20.46	20.39	20.32	20.27
5	Limpopo	11.76	11.76	11.73	11.71	11.54	11.62	11.60	11.55	11.49	11.45
6	Mpumalanga	8.19	8.21	8.14	8.21	8.19	8.17	8.17	8.16	8.16	8.16
7	NorthCape	2.65	2.65	2.65	2.67	2.64	2.64	2.64	2.63	2.62	2.62
8	NorthWest	6.89	6.89	6.90	6.90	6.97	6.98	6.99	7.00	7.02	7.03
9	WesternCape	10.06	10.02	10.08	10.13	10.22	10.32	10.36	10.41	10.45	10.49
10	Total	100	100	100	100	100	100	100	100	100	100

5 Illustrative application: Change in medical aid cover

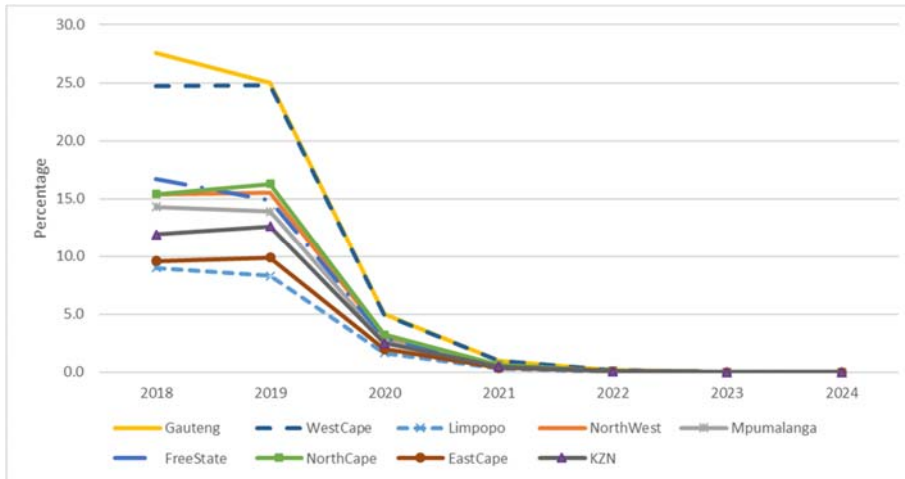
The National Health Insurance (NHI) is a health financing system that pools funds to provide access to affordable health care services to the South African public. The implication of this scheme is that all private medical aid cover will fall under the NHI system. Thus, medical services are financed through the NHI scheme and not by private medical aid insurance. To see the impact of a reduction in the percentage of people with medical aid insurance, we reduce the share of people in each province with medical aid insurance. This reduction in medical aid insurance is phased in over three years.

The change in the number of insured people in each province, affects only the health component of the equitable share formula. This component contributes 27 per cent to the overall equitable share formula. Recall from our discussion in Section 4.2, the health component includes two sub-component, (i) risk-adjustment component, which contributes 75 per cent towards the health component and the (ii) output sub-component, which contributes 25 per cent. The reduction in the percentage of insured people affects only the risk-adjustment component.

The risk-adjustment component determines the number of insured and uninsured people in each province. The uninsured population in each province is adjusted for by a risk index. This index is an indication of each province's health risk profile. Each province's share of this weighted population is used to estimate their share of the risk-adjusted sub-component (National Treasury, 2015: 20).

Figure 2 shows the reduction in the percentage of people with medical aid insurance in each province. In 2019, approximately 25 per cent of people in Gauteng and Western Cape had medical aid insurance. For the remainder of the provinces, the percentage of insured people range between 8.3 percent in Limpopo to 16.3 per cent in the Northern Cape. These percentages consistent with National Treasury data (National Treasury, 2019: 17). From 2020 onwards, the percentage insured people fall in all provinces, so that by 2022, these shares are close to zero.

Figure 2. Percentage of people with medical aid insurance.



Figures 3 and 4 shows the total number of insured and uninsured people in the baseline and policy simulation. In the baseline, the total number people with medical aid insurance steady grows over time. By 2024, approximately 11.2 million people has insurance (Figure 3). Those without medical insurance total to approximately 51 million by 2024 (Figure 4).

With the NHI, the number of people with medical aid insurance falls in-line with the reductions in the share of people with medical aid insurance (Figure 3). By 2022, the number of insured people is close to zero as medical services are covered under the NHI scheme. By 2024, the number of people covered by the NHI is 62 million (Figure 4). The difference in the baseline and policy results illustrated in Figure 4 is equal to the number of previously insured people of 11.2 million people.

Figure 3. Number of people with medical insurance in the baseline and policy simulation ('000)

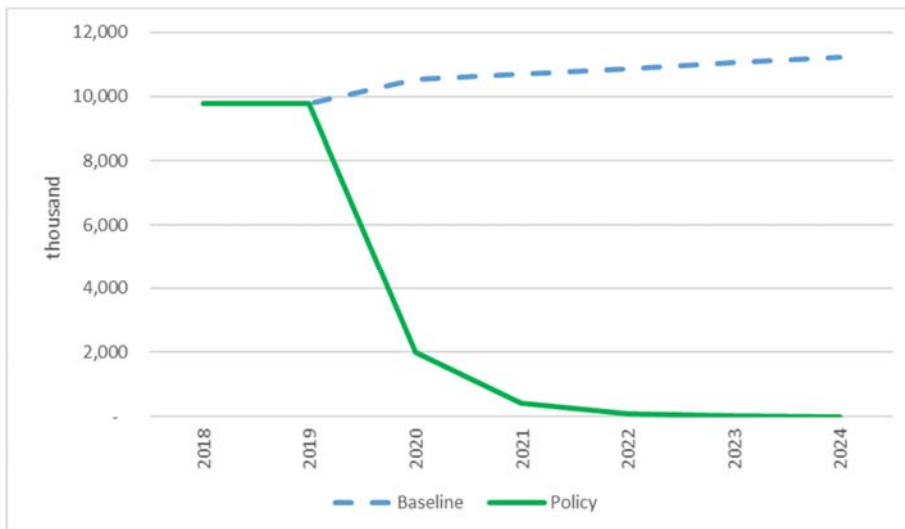
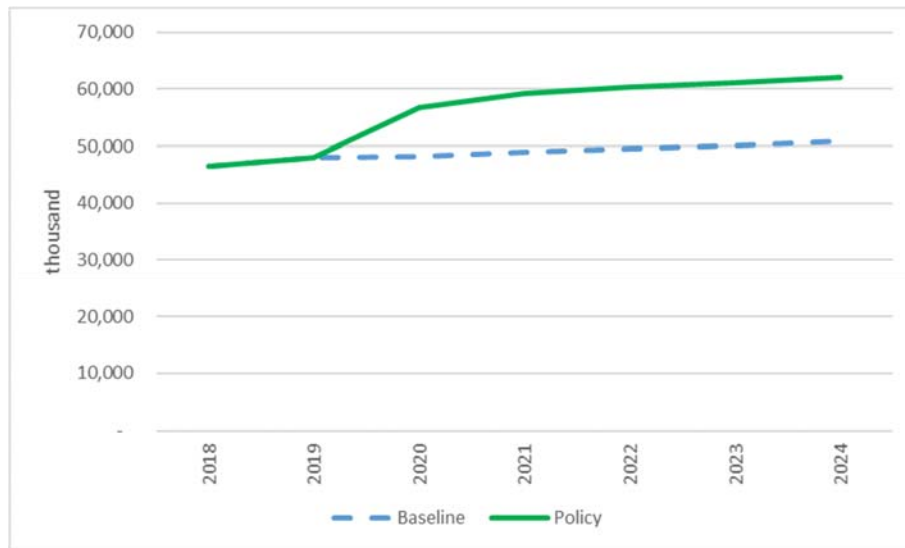


Figure 4. Number of people with no medical insurance in the baseline and policy simulation ('000)



We calculate the weighted population by adjusting the uninsured population with a risk-adjustment index (See (E.25)). Each province's share of this weighted population is used to calculate their share of the risk-adjusted sub-component (See (E.28)).

Tables 49 and 50 presents the risk-adjusted shares determined in the baseline and policy simulations. Table 51 presented the ordinary change in the shares between the policy and baseline simulation. This table clearly shows the change in the risk-adjusted shares, with Gauteng and the Western Cape showing an increase, while the other provinces show a decrease in the shares.

For Gauteng and the Western Cape, the risk-adjusted share increases. By 2024, the share for Gauteng increased from 25.0 per cent to 28.1 per cent. The Western Cape has a 1 percentage point increase in 2024. This is not surprising as the province with the highest number of insured people, in the baseline, are from Gauteng and the Western Cape.

Table 49. Risk-adjusted shares in the baseline simulation, 2015-2024 (%)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	10.7	10.7	10.5	10.4	10.1	10.4	10.3	10.2	10.2	10.1
2	NorthWest	7.2	7.2	7.1	7.1	7.2	7.2	7.2	7.3	7.3	7.3
3	Mpumalanga	7.8	7.8	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8
4	Gauteng	21.9	22.2	22.3	22.8	24.2	24.0	24.2	24.5	24.7	25.0
5	FreeState	5.4	5.3	5.4	5.3	5.4	5.2	5.1	5.1	5.0	5.0
6	NorthCape	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1
7	WestCape	10.7	10.6	10.8	10.8	10.8	11.0	11.1	11.1	11.2	11.2
8	EastCape	13.4	13.3	13.2	12.8	11.9	12.1	11.9	11.8	11.6	11.5
9	KZN	20.8	20.9	20.9	20.8	20.5	20.2	20.2	20.1	20.1	20.0
10	Total	100	100	100	100	100	100	100	100	100	100

Table 50. Risk-adjusted shares in the policy simulation, 2015-2024 (%)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	10.7	10.7	10.5	10.4	10.1	9.5	9.3	9.2	9.1	9.0
2	NorthWest	7.2	7.2	7.1	7.1	7.2	7.0	7.0	7.0	7.0	7.0
3	Mpumalanga	7.8	7.8	7.6	7.7	7.8	7.5	7.5	7.5	7.5	7.5
4	Gauteng	21.9	22.2	22.3	22.8	24.2	26.7	27.3	27.6	27.9	28.1
5	FreeState	5.4	5.3	5.4	5.3	5.4	5.1	5.0	4.9	4.9	4.9
6	NorthCape	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1
7	WestCape	10.7	10.6	10.8	10.8	10.8	11.9	12.1	12.1	12.2	12.2
8	EastCape	13.4	13.3	13.2	12.8	11.9	11.2	10.9	10.7	10.6	10.4
9	KZN	20.8	20.9	20.9	20.8	20.5	19.1	18.9	18.8	18.7	18.7
10	Total	100	100	100	100	100	100	100	100	100	100

Table 51. Change in the risk-adjusted shares, 2015-2024 (percentage point)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	0	0	0	0	0	-0.9	-1.0	-1.1	-1.1	-1.1
2	NorthWest	0	0	0	0	0	-0.2	-0.2	-0.3	-0.3	-0.3
3	Mpumalanga	0	0	0	0	0	-0.3	-0.3	-0.3	-0.3	-0.3
4	Gauteng	0	0	0	0	0	2.7	3.0	3.1	3.1	3.2
5	FreeState	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1
6	NorthCape	0	0	0	0	0	-0.0	-0.0	-0.0	-0.0	-0.0
7	WestCape	0	0	0	0	0	0.8	1.0	1.0	1.0	1.0
8	EastCape	0	0	0	0	0	-0.9	-1.0	-1.0	-1.0	-1.0
9	KZN	0	0	0	0	0	-1.1	-1.3	-1.3	-1.3	-1.3
10	Total	0	0	0	0	0	0	0	0	0	0

The risk-adjusted shares contributes 75 per cent to the health component. The remainder of the health component includes an output sub-component. This component includes two sub-component. The first is the number of visits to primary health care facilities. This share contributes 5 per cent to the health component. For more information about this share, see Section 5.2.2. The second sub-component is each province's share of the total patient-day equivalents from public hospitals. This share contributes 20 per cent to the health component. For more information about this share, see Section 5.2.3. Neither of the shares of the output sub-component are affected by the fall in the share of medical aid insurance. Therefore, they remain at their baseline values. Below we present these shares.

Table 52. Primary health care visit shares, 2015-2024 (%)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	11.1	11.1	11.2	11.7	12.3	12.5	12.6	12.5	12.4	12.4
2	NorthWest	6.2	6.4	6.4	6.4	6.3	6.2	6.2	6.2	6.2	6.3
3	Mpumalanga	7.1	7.2	7.3	7.4	7.6	7.6	7.6	7.7	7.7	7.7
4	Gauteng	18.1	18.3	17.9	17.5	17.6	17.8	18.0	18.2	18.4	18.6
5	FreeState	5.6	5.3	5.2	5.0	4.7	4.5	4.4	4.3	4.3	4.3
6	NorthCape	2.6	2.6	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3
7	WestCape	11.3	11.1	11.1	11.3	11.6	11.9	12.0	12.1	12.2	12.2
8	EastCape	13.6	13.7	14.1	14.4	14.1	13.8	13.8	13.6	13.5	13.3
9	KZN	24.4	24.4	24.2	23.8	23.5	23.4	23.1	23.1	23.0	23.0
10	Total	100	100	100	100	100	100	100	100	100	100

Table 43. Workload shares, 2015-2024 (%)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	9.0	9.0	9.0	9.1	9.2	9.4	9.5	9.4	9.4	9.3
2	NorthWest	5.0	5.2	5.2	5.1	5.0	4.9	4.9	4.9	4.9	4.9
3	Mpumalanga	5.8	6.0	6.1	6.2	6.2	6.2	6.2	6.2	6.2	6.2
4	Gauteng	20.7	20.7	21.1	22.0	22.6	22.9	23.2	23.4	23.7	23.9
5	FreeState	5.5	5.3	5.1	4.8	5.4	6.0	5.9	5.8	5.8	5.7
6	NorthCape	1.6	1.7	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8
7	WestCape	13.2	13.3	13.5	13.6	13.6	13.6	13.8	13.8	13.9	13.9
8	EastCape	14.1	14.2	14.2	14.0	13.7	13.5	13.5	13.4	13.2	13.0
9	KZN	25.0	24.5	24.0	23.2	22.5	21.7	21.4	21.3	21.3	21.2
10	Total	100	100	100	100	100	100	100	100	100	100

Tables 44 and 45 presents the final weighted health shares from the baseline and policy simulations. Table 46 shows that difference between the policy and baseline health shares.

Table 44. The weighted health shares in the baseline simulation, 2015-2024

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	10.4	10.3	10.3	10.2	10.1	10.3	10.3	10.2	10.1	10.1
2	NorthWest	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.8
3	Mpumalanga	7.3	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.5	7.5
4	Gauteng	21.4	21.7	21.8	22.4	23.6	23.5	23.7	24.0	24.2	24.4
5	FreeState	5.4	5.3	5.3	5.2	5.4	5.3	5.2	5.2	5.1	5.1
6	NorthCape	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1
7	WestCape	11.3	11.1	11.3	11.4	11.4	11.6	11.7	11.7	11.8	11.8
8	EastCape	13.5	13.5	13.5	13.1	12.3	12.5	12.3	12.2	12.0	11.9
9	KZN	21.8	21.8	21.7	21.4	21.0	20.7	20.6	20.5	20.5	20.4
10	Total	100	100	100	100	100	100	100	100	100	100

Table 45. The weighted health shares in the policy simulation, 2015-2024

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	10.4	10.3	10.3	10.2	10.1	9.6	9.5	9.4	9.3	9.3
2	NorthWest	6.7	6.7	6.7	6.7	6.7	6.5	6.5	6.5	6.5	6.6
3	Mpumalanga	7.3	7.4	7.3	7.4	7.4	7.2	7.2	7.2	7.2	7.2
4	Gauteng	21.4	21.7	21.8	22.4	23.6	25.5	26.0	26.3	26.6	26.8
5	FreeState	5.4	5.3	5.3	5.2	5.4	5.2	5.2	5.1	5.1	5.0
6	NorthCape	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1
7	WestCape	11.3	11.1	11.3	11.4	11.4	12.2	12.4	12.5	12.5	12.6
8	EastCape	13.5	13.5	13.5	13.1	12.3	11.8	11.6	11.4	11.2	11.1
9	KZN	21.8	21.8	21.7	21.4	21.0	19.8	19.6	19.5	19.5	19.4
10	Total	100	100	100	100	100	100	100	100	100	100

Table 46. Change in the weighted health share, 2015-2024 (difference between policy and baseline)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	0	0	0	0	0	-0.7	-0.8	-0.8	-0.8	-0.8
2	NorthWest	0	0	0	0	0	-0.2	-0.2	-0.2	-0.2	-0.2
3	Mpumalanga	0	0	0	0	0	-0.2	-0.2	-0.2	-0.2	-0.2
4	Gauteng	0	0	0	0	0	2.0	2.3	2.3	2.4	2.4
5	FreeState	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1
6	NorthCape	0	0	0	0	0	-0.0	-0.0	-0.0	-0.0	-0.0
7	WestCape	0	0	0	0	0	0.6	0.7	0.8	0.8	0.8
8	EastCape	0	0	0	0	0	-0.7	-0.8	-0.8	-0.8	-0.8
9	KZN	0	0	0	0	0	-0.8	-1.0	-1.0	-1.0	-1.0
10	Total	0	0	0	0	0	-0	0	-0	0	-0

As expected, the weighted health share follows the same pattern as the risk-weighted average (Table 46) in that Gauteng and the Western Cape's health shares increased while the other province's shares decreased. The main reason is that Gauteng and Western Cape are the provinces with the highest share of people with medical aid insurance. Thus with the introduction of the NHI, the share of

uninsured people in these provinces increases. Overall, the risk-adjusted shares now closely follow the share of each province in the total population of South Africa.

The weighted provincial equitable share as calculated via (E.50) is an average of the six components described in Section 3.1 to 3.6. Tables 47 and 48 presents the PES share in the baseline and policy simulations. Table 49 shows the change in these shares between the policy and baseline simulations.

Not surprisingly, Table 49 shows that the overall PES for Gauteng and Western Cape increase over time. In 2024, the PES for Gauteng is 0.64 percentage points higher than in the baseline. This implies that in 2024, Gauteng receives 22.62 per cent (Table 48) of the total value of national transfers from the national government as compared to 21.98 per cent in the baseline (Table 47). The remainder of the provinces shows a percentage point decrease. The largest decrease is for KZN at 19.99 per cent (0.27 percentage points lower than the baseline level), followed by Limpopo and Eastern Cape.

Table 47. The weighted PES shares in the baseline simulation, 2015-2024

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	11.762	11.764	11.730	11.710	11.536	11.620	11.604	11.546	11.493	11.450
2	NorthWest	6.890	6.889	6.901	6.895	6.966	6.975	6.992	7.004	7.017	7.030
3	Mpumalanga	8.194	8.210	8.143	8.212	8.190	8.170	8.166	8.158	8.153	8.152
4	Gauteng	19.518	19.659	19.800	20.116	20.874	20.996	21.187	21.480	21.748	21.977
5	FreeState	5.619	5.572	5.566	5.545	5.599	5.533	5.499	5.466	5.435	5.405
6	NorthCape	2.653	2.649	2.652	2.668	2.641	2.641	2.637	2.630	2.623	2.618
7	WestCape	10.058	10.020	10.082	10.134	10.217	10.321	10.360	10.409	10.454	10.492
8	EastCape	14.038	14.040	14.021	13.712	13.181	13.197	13.094	12.921	12.755	12.605
9	KZN	21.267	21.196	21.106	21.007	20.797	20.548	20.461	20.385	20.322	20.270
10	Total	100	100	100	100	100	100	100	100	100	100

Table 48. The weighted PES shares in the policy simulation, 2015-2024

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	11.762	11.764	11.730	11.710	11.536	11.439	11.393	11.330	11.275	11.233
2	NorthWest	6.890	6.889	6.901	6.895	6.966	6.933	6.942	6.952	6.963	6.975
3	Mpumalanga	8.194	8.210	8.143	8.212	8.190	8.119	8.105	8.095	8.088	8.086
4	Gauteng	19.518	19.659	19.800	20.116	20.874	21.517	21.798	22.111	22.385	22.617
5	FreeState	5.619	5.572	5.566	5.545	5.599	5.516	5.479	5.445	5.414	5.384
6	NorthCape	2.653	2.649	2.652	2.668	2.641	2.639	2.635	2.628	2.621	2.615
7	WestCape	10.058	10.020	10.082	10.134	10.217	10.493	10.560	10.614	10.660	10.697
8	EastCape	14.038	14.040	14.021	13.712	13.181	13.017	12.886	12.709	12.543	12.394
9	KZN	21.267	21.196	21.106	21.007	20.797	20.327	20.203	20.118	20.052	19.999
10	Total	100	100	100	100	100	100	100	100	100	100

Table 49. Change in the weighted share, 2015-2024 (difference between policy and baseline)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	-0	0	0	0	0	-0.18	-0.21	-0.22	-0.22	-0.22
2	NorthWest	-0	0	0	0	0	-0.04	-0.05	-0.05	-0.05	-0.05
3	Mpumalanga	0	0	0	0	0	-0.05	-0.06	-0.06	-0.06	-0.07
4	Gauteng	0	0	0	0	0	0.52	0.61	0.63	0.64	0.64
5	FreeState	0	0	0	0	0	-0.02	-0.02	-0.02	-0.02	-0.02
6	NorthCape	0	0	0	0	0	-0.00	-0.00	-0.00	-0.00	-0.00
7	WestCape	-0	0	0	0	0	0.17	0.20	0.20	0.21	0.21
8	EastCape	-0	0	0	0	0	-0.18	-0.21	-0.21	-0.21	-0.21
9	KZN	0	0	0	0	0	-0.22	-0.26	-0.27	-0.27	-0.27
10	Total	-0	0	0	0	0	0	0	0	0	-0

What does the change in the weighted share imply about the value of national transfers to each province? Statistics South Africa summarises the GFS accounts for national and provincial governments (StatsSA, 2019b). Of interest in this paper is the value of national grant to provinces- summarised in Table 50. For 2015 to 2018, the data is from Statistics South Africa. From 2019

onwards, the total value of the transfers to provinces grows at an annual average of 6.5 per cent. The annual growth rate is based on the growth in the nominal transfers between 2015 and 2018. It is this annual aggregate value that is distributed over the provinces. The distribution is based on the PES shares in Table 47 and 48. The grants allocated over each provinces, given the baseline and policy PES shares, are shown in Table 51 and 52. Table 53 shows the difference between the transfer value in the policy and baseline simulation.

Table 50. Value of transfers from national to provincial government, R million

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	GFS				Forecast					
Grants received	445,330	471,699	500,619	538,785	574,108	611,746	651,852	694,587	740,124	788,647

Table 51. National grant to provinces in the baseline, R million

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	52,380	55,492	58,722	63,090	66,229	71,086	75,640	80,200	85,059	90,303
2	NorthWest	30,685	32,495	34,547	37,151	39,991	42,670	45,577	48,649	51,932	55,439
3	Mpumalanga	36,489	38,729	40,765	44,248	47,020	49,980	53,231	56,664	60,343	64,290
4	Gauteng	86,920	92,731	99,121	108,381	119,837	128,440	138,107	149,200	160,962	173,324
5	FreeState	25,025	26,283	27,862	29,876	32,143	33,847	35,846	37,968	40,228	42,630
6	NorthCape	11,814	12,494	13,275	14,376	15,160	16,154	17,191	18,267	19,415	20,644
7	WestCape	44,790	47,265	50,472	54,602	58,658	63,137	67,530	72,301	77,374	82,745
8	EastCape	62,516	66,229	70,192	73,879	75,672	80,734	85,355	89,748	94,401	99,411
9	KZN	94,710	99,982	105,662	113,182	119,397	125,700	133,375	141,589	150,409	159,862
10	Total	445,330	471,699	500,619	538,785	574,108	611,746	651,852	694,587	740,124	788,647

Table 52. National grant to provinces in the policy simulation, R million

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	52,380	55,492	58,722	63,090	66,229	69,975	74,263	78,694	83,447	88,585
2	NorthWest	30,685	32,495	34,547	37,151	39,991	42,413	45,252	48,287	51,537	55,010
3	Mpumalanga	36,489	38,729	40,765	44,248	47,020	49,666	52,835	56,223	59,865	63,772
4	Gauteng	86,920	92,731	99,121	108,381	119,837	131,631	142,088	153,579	165,675	178,372
5	FreeState	25,025	26,283	27,862	29,876	32,143	33,743	35,714	37,822	40,068	42,457
6	NorthCape	11,814	12,494	13,275	14,376	15,160	16,145	17,178	18,251	19,396	20,622
7	WestCape	44,789	47,265	50,472	54,602	58,658	64,191	68,834	73,724	78,894	84,363
8	EastCape	62,516	66,229	70,192	73,879	75,672	79,632	83,998	88,272	92,832	97,748
9	KZN	94,710	99,982	105,662	113,182	119,397	124,351	131,691	139,735	148,410	157,718
10	Total	445,330	471,699	500,619	538,785	574,108	611,746	651,852	694,587	740,124	788,647

Table 53. Difference in national transfers between policy and baseline simulation, R million

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	-0	0	0	0	0	-1,110	-1,377	-1,507	-1,612	-1,718
2	NorthWest	-0	0	0	0	0	-257	-325	-362	-395	-429
3	Mpumalanga	0	0	0	0	0	-314	-396	-440	-479	-518
4	Gauteng	0	0	0	0	0	3,191	3,981	4,379	4,712	5,048
5	FreeState	0	0	0	0	0	-104	-131	-146	-160	-173
6	NorthCape	0	0	0	0	0	-9	-13	-16	-19	-22
7	WestCape	-0	0	0	0	0	1,053	1,303	1,423	1,520	1,618
8	EastCape	-0	0	0	0	0	-1,102	-1,358	-1,476	-1,570	-1,662
9	KZN	0	0	0	0	0	-1,349	-1,684	-1,854	-1,998	-2,144
10	Total	-0	0	0	0	0	0	0	0	0	-0

Table 53 shows that for Gauteng and Western Cape, the value of transfer's increases from 2020 onwards. This is in line with the change in weighted provincial equitable shares shown in Table 49. By 2024, Gauteng and Western Cape receives an additional 5,048 and 1,618 million Rand respectively. The increase in transfers to these two provinces are offset by decreases in the transfers to the remaining provinces.

The change in provincial transfer income is significant in relation to the total transfer value. Table 54 shows the change in transfer income as a percentage of total transfer income, calculated in the policy simulation.⁶ Gauteng's transfer income increases by 2.42 per cent in 2020 to 2.83 percent in 2024 while Western Capes transfer income increases from 1.64 to 1.92 per cent. For all other provinces the percentage of transfer income falls.

Table 54. The change in transfer income as a share in total transfers (%)

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	-0	0	0	0	0	-1.59	-1.85	-1.91	-1.93	-1.94
2	NorthWest	-0	0	0	0	0	-0.61	-0.72	-0.75	-0.77	-0.78
3	Mpumalanga	0	0	0	0	0	-0.63	-0.75	-0.78	-0.80	-0.81
4	Gauteng	0	0	0	0	0	2.42	2.80	2.85	2.84	2.83
5	FreeState	0	0	0	0	0	-0.31	-0.37	-0.39	-0.40	-0.41
6	NorthCape	0	0	0	0	0	-0.06	-0.07	-0.09	-0.10	-0.11
7	WestCape	-0	0	0	0	0	1.64	1.89	1.93	1.93	1.92
8	EastCape	-0	0	0	0	0	-1.38	-1.62	-1.67	-1.69	-1.70
9	KZN	0	0	0	0	0	-1.08	-1.28	-1.33	-1.35	-1.36

Tables 55 and 56 presents the per capita transfer value for each province in the baseline and policy simulation. In other words, multiplying the values in Table 55 and 56 with the number of people in each province (Table 21) yields the transfer value to each province (Table 53). Table 57 shows the difference in per capital transfer between the policy and baseline values. For Gauteng, the increase in national transfer income translates into per capital increase of 210 Rand in 2020 to 303 Rand in 2024. For the Western Cape, the increase translates into a 154 Rand increase per person in 2020 to 220 Rand in 2024. For all other provinces, the transfer income per capital falls.

Table 55. Per capital transfer value in the baseline, Rand

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	9,303	9,690	10,118	10,895	11,424	11,882	12,549	13,202	13,911	14,671
2	NorthWest	8,347	8,766	9,113	9,718	10,051	10,595	11,138	11,713	12,318	12,960
3	Mpumalanga	8,628	9,040	9,419	10,088	10,394	10,884	11,416	11,975	12,575	13,217
4	Gauteng	6,730	7,025	7,343	7,804	8,143	8,463	8,884	9,380	9,892	10,420
5	FreeState	8,980	9,327	9,735	10,432	10,880	11,722	12,369	13,058	13,786	14,558
6	NorthCape	10,126	10,535	11,137	11,950	12,370	12,781	13,438	14,122	14,850	15,628
7	WestCape	7,323	7,623	8,020	8,529	8,859	9,225	9,693	10,201	10,728	11,277
8	EastCape	9,211	9,576	9,939	10,897	11,601	12,028	12,714	13,363	14,064	14,816
9	KZN	8,856	9,157	9,536	10,218	10,487	11,135	11,688	12,277	12,906	13,580
10	Total	8,247	8,583	8,954	9,585	9,945	10,408	10,938	11,499	12,093	12,720

⁶ The values in Table 54 is calculated by dividing Table53 by Table 52.

Table 56. Per capital transfer value in the policy simulation, Rand

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	9,303	9,690	10,118	10,895	11,424	11,696	12,320	12,954	13,648	14,392
2	NorthWest	8,347	8,766	9,113	9,718	10,051	10,532	11,059	11,626	12,225	12,860
3	Mpumalanga	8,628	9,040	9,419	10,088	10,394	10,815	11,331	11,882	12,475	13,111
4	Gauteng	6,730	7,025	7,343	7,804	8,143	8,674	9,140	9,655	10,182	10,724
5	FreeState	8,980	9,327	9,735	10,432	10,880	11,686	12,324	13,008	13,732	14,498
6	NorthCape	10,126	10,535	11,137	11,950	12,370	12,774	13,428	14,109	14,835	15,611
7	WestCape	7,323	7,623	8,020	8,529	8,859	9,379	9,880	10,401	10,939	11,497
8	EastCape	9,211	9,576	9,939	10,897	11,601	11,864	12,512	13,143	13,830	14,568
9	KZN	8,856	9,157	9,536	10,218	10,487	11,015	11,540	12,116	12,735	13,398
10	Total	8,247	8,583	8,954	9,585	9,945	10,408	10,938	11,499	12,093	12,720

Table 57. Difference in per capital transfer value, Rand

	Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Limpopo	-0	0	0	0	0	-186	-228	-248	-264	-279
2	NorthWest	-0	0	0	0	0	-64	-79	-87	-94	-100
3	Mpumalanga	0	0	0	0	0	-68	-85	-93	-100	-107
4	Gauteng	0	0	0	0	0	210	256	275	290	303
5	FreeState	0	0	0	0	0	-36	-45	-50	-55	-59
6	NorthCape	0	0	0	0	0	-7	-10	-12	-14	-17
7	WestCape	-0	0	0	0	0	154	187	201	211	220
8	EastCape	-0	0	0	0	0	-164	-202	-220	-234	-248
9	KZN	0	0	0	0	0	-119	-148	-161	-171	-182
10	Total	-0	0	0	0	0	0	0	0	0	0

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