REPORT

A macroeconomic impact assessment of a policy of land expropriation without compensation in South Africa

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Title page

Research topic/themes:

A study to determine the effects of land expropriation without compensation (EWC) on the relationship between capital formation and the gross domestic product (GDP) in a number of country case studies, as a proxy for quantifying the likely impact of EWC on the South African economy, via econometric modelling. The latter will highlight the effect on the country's GDP, fiscal revenues and public debt.

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Abbreviations

CPI	Consumer price index
CRC	Constitutional Review Committee (Parliament of SA)
DBSA	Development Bank of Southern Africa
EIA	Economic impact assessment
EWC	Expropriation of land without compensation
FDI	Foreign direct investment
GDCF	Gross domestic capital formation
GDFI	Gross domestic fixed investment
GDP	Gross domestic product
IDC	Industrial Development Corporation (South Africa)
IEF	Index of economic freedom
IMF	International Monetary Fund
SARB	South African Reserve Bank
SOE	State-owned enterprise
SADC	Southern African Development Community
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
VECM	Vector Error Correction Methods
ZANU	Zimbabwe African National Union
ZAPU	Zimbabwe African People’s Union

Executive summary

Prior to the Covid-19 pandemic, the debate on land expropriation without compensation (EWC) had contributed to a significant decline in confidence levels amongst businesses and consumers alike (BER/Rand Merchant Bank: 2018), with capital formation having declined by more than 9% over the past four years (in real terms).

Other reasons for the lethargic economic growth in the wake of low investor confidence since 2015 included the restrictive monetary policy stance of the South African Reserve Bank (which caused the real cost of capital to increase by more than 100%) and tangible proof of state capture under the administration of Mr Jacob Zuma.

The motivation for a study to determine the impact on the economy of a policy of EWC was born from three major considerations: Firstly, the advantages to society in general of living in a democratic country with a high level of economic freedom are multi-fold. Measurements of economic well-being *per capita* amongst different countries unequivocally confirm a strong positive correlation between a combination of economic and political freedom, on the one hand, and living standards, on the other hand.

When a government embarks on a policy of expropriation of private property without compensation, the fundamental tenet of economic freedom, as embodied in free enterprise principles, is destroyed.

Secondly, the age-old economic production function is comprised of four basic factors without which nothing can be produced, namely, capital, labour, natural resources and entrepreneurship. The term “capital” in this simple equation refers to physical capital, e.g. buildings, vehicles, tractors and machinery. These productive assets are very expensive and require private property ownership, in order to secure the collateral that is usually required for their financing.

Economic capital and economic output (as measured by the gross domestic product – GDP) are highly correlated and any disincentive to invest in economic capital formation will serve to erode a country’s GDP growth, with a predictable negative impact on employment, taxation revenues and the fiscal ability to provide basic services at all government levels (Botha, R F: 2018). Examples abound of countries that have experienced economic decline as a result of policies of EWC, as confirmed by the country case studies in section 5 of the study.

A third issue is related to the threat of food insecurity and the potentially debilitating effect on macroeconomic and socio-political stability. When a country is forced to free up scarce resources in order to import food, it is faced with the prospect of balance of payments instability and a depreciating currency, whilst often simultaneously having to cope with socio-political disturbances due to temporary food shortages. There is a link between this scenario and the first consideration, as most countries that enjoy food security also enjoy a high level of economic freedom.

Due to the highly contentious nature of the issue of land reform in South Africa, which can invoke high emotional reaction, it was decided by the authors to conduct an economic impact assessment (EIA) of a policy of EWC. The study does not reflect on the nature of past practices of land ownership in South Africa. The intention is to avoid a disjointed debate that focuses on the past and widely differing opinions on what is perceived as wrong or right with property

ownership in the country, but simply to point out the results of a quantitative assessment of the likely future effects on the South African economy if EWC was to be pursued.

The ultimate focus of the EIA conducted in this study is to quantify the impact of a policy of EWC on key economic variables, including GDP, employment and taxation revenues, as a result of a subsequent (and predictable) decline in capital formation as percentage of gross domestic product (GDP).

A supporting literature study of countries that have pursued policies similar to EWC reveals an unequivocal trend for capital formation/GDP ratios to decline in the aftermath of such policy interventions. All of them have experienced the debilitating effects on their economies that follow policies of EWC, whilst some of them have recovered after a subsequent reversal of this policy approach.

The main purpose of the country case studies is to determine a range for the degree to which capital formation/GDP ratios *decline* in the short to medium term, after the implementation of policies linked to EWC, as well as the subsequent *increases* in these ratios that occur after the incentive for productive economic activity inherent in private property ownership has been restored (either fully or partially).

The results of the ratios determined in these case studies yield an average annual decline in capital formation as a percentage of GDP of 13.9% and serves as justification for two scenarios depicting the likely effects of declines in capital formation/GDP ratios in South Africa, assuming that EWC is pursued.

These effects are determined via an econometric modelling exercise, which forecasts the impact on the country's GDP and also on fiscal stability, including taxation revenues and the anticipated change to the public debt/GDP ratio. The forecasts are for nine quarters, commencing in the third quarter of 2020.

A summary of the results of the quantitative macroeconomic impact assessment of EWC contained in this study is as follows (scenarios 1 and 2 refer to declines in capital formation of 5% and 10% per annum, respectively, which are conservative when compared to the average decline determined in the country case studies):

- Annualised nominal GDP in Q3 2022 will be R417 billion less in the event of a 5% decline in capital formation – scenario 1 (induced by EWC) – compared to the retention of statutory protection of property rights. This equates to a loss of 7.2% of GDP. In the case of a 10% decline in capital formation – scenario 2, the decline in GDP amounts to R616 billion (10.7% of GDP).

- The cumulative loss of economic output over the nine quarters of the forecasting exercise amounts to R735 billion and R1.05 trillion for scenarios 1 and 2, respectively.

- Under both scenarios 1 and 2, South Africa will remain in recession throughout the forecasting period (up to Q3 2022), as measured by real GDP growth on a year-on-year basis and the economy will not recover from the Covid-19 pandemic in 2021, as anticipated by the National Treasury and the International Monetary Fund.

- Total fiscal revenues will decline over the forecasting period by R215 billion for scenario 1 and by R307 billion for scenario 2, which will translate into an equivalent escalation of government's financing requirements

- Government's gross debt/GDP ratio will increase from a 2020 medium term budget estimate of 91% for the 2021/22 fiscal year to 95.8% for scenario 1 and to 101.3% for scenario 2 by the 3rd quarter of 2022

- On the back of a recession and fiscal instability, South Africa's sovereign bonds will in all likelihood be downgraded further by all of the leading credit ratings agencies, which will place upward pressure on long-term interest rates and increase the cost of servicing public debt, leading to a so-called "crowding-out" effect of the fiscal ability to spend funds on poverty alleviation and basic services such as education, health and the maintenance of infrastructure

- Based on the average contribution to GDP per worker (formal and informal sectors), the decline in GDP between scenario 1 and a scenario without EWC could lead to a loss of more than 1.4 million jobs. This equates to 8.5% of total employment in the first quarter of 2020 (pre-Covid).

- Against the background of the current high level of socio-political unrest in South Africa, the study's forecasts of a prolonged recession exacerbated by EWC, combined with higher interest rates and significantly higher unemployment will tend to aggravate the security situation in the country, in general.

Concluding notes

There can be no doubt that the overwhelming majority of South Africans are acutely aware of the disasters that occurred in Zimbabwe and Venezuela when the constitutional protection of property rights were abolished by their respective governments.

Literally millions of Zimbabweans have fled the country as a result of the disastrous land grabs that accompanied the policy of nationalisation, implemented by the late Robert Mugabe. Approximately half of those that have remained in a country that was once a net exporter of food are now reliant on international food aid.

Venezuela is a more recent example of the short-cut to abject poverty that inevitably occurs when the state expropriates property without compensation. According to the 2020 Economic Freedom Index, Venezuela is ranked second from bottom out of 180 countries for which sufficient data is available (North Korea is ranked last). In the space of only two years between 2017 and 2019, the country's GDP *per capita* has halved to less than $2,600. Hyper-inflation exists in Venezuela, estimated at 20,000%, which effectively makes Venezuela's currency worthless.

Empirical evidence relating to seven country case studies confirms the stifling effect on initiative, entrepreneurship and productivity inherent in the plethora of regulations and restrictions that usually accompany an institutionalised system where private property ownership is not guaranteed and protected by law.

In sharp contrast, the freedom associated with the economic systems that are prevalent in virtually all free enterprise democracies provides individuals with the incentives to open new

frontiers in science, product differentiation, welfare creation and the relief of human misery via highly versatile, innovative and efficient economies.

It is worth remembering that South Africa is a young and vibrant democracy that caters for a multitude of different cultures, beliefs and political affiliations. The country enjoys an exceptionally high global ranking for freedom of speech, freedom of the press, economic freedom and freedom of political and religious affiliation. As an inference, many different opinions are communicated every day, some with substance, some void of rationality, some just plain ignorant.

The price that one pays for living in a country with so much freedom is to be eternally vigilant of the difference between substance and noise when policies are being considered that could dramatically alter the prospects for stability and prosperity. Countries that guarantee private property rights not only possess greater human freedom, but they also attract more domestic and inward investment in productive assets than countries that do not guarantee private property rights.

It is regarded as a matter of some urgency to move the debate on land reform beyond a discredited ideology and backward-looking approach to one that attempts to maximise new economic opportunities for securing a better future for all South Africans, based on an inclusive process of negotiation and a sensible approach to land reform – preferably on similar lines to the Codesa negotiations that preceded the country's peaceful transition to democracy.

This study confirms imminent socio-economic disaster for South Africa in the event of EWC being pursued. Politicians and bureaucrats cannot repeal the fundamental laws of economics, try as they might. Economic capital, which is an indispensable prerequisite for economic development, job creation and growth, needs to be nurtured and incentivised, otherwise it simply moves to greener pastures.

1 Introduction

The Joint Constitutional Review Committee (CRC) South Africa's Parliament is currently investigating the feasibility of a constitutional amendment to allow for the expropriation of land without compensation (EWC).

Several prominent business leaders; property developers; employer organisations in the agriculture sector; and spokespersons of political parties opposed to the relevant Parliamentary motion (adopted in February 2018), have warned that in the event of EWC being adopted, there would be unforeseen consequences that are not in the best interests of South Africa.

As part of the process, the CRC conducted public hearings in all of the provinces and invited written submissions to assist with the investigation. The oral submissions at the hearings were often fraught with high emotions and the general impression gleaned from media reports indicated an absence of detailed and accurate information on the topic of land reform.

Realising the need for more robust and factual information surrounding the land reform debate, the authors of this study conducted a macroeconomic impact assessment of a policy of EWC, published in October 2018. The study was premised on the importance of considering empirical and quantifiable data regarding the likely impact that radical land reform could exert on the South African economy and, in particular, fiscal stability and the dire need to create jobs for a growing and youthful population.

Any future policy decisions on land tenure regulations will undoubtedly have a major bearing on South Africa's ability to grow its economy and create employment.

This study remains an attempt to quantify the economic impact of EWC, with the assistance of an econometric model. Certain sections of the 2018-study have been condensed, but the econometric modelling exercise has been conducted with a complete updating of historical data sets, including a quarterly forecast for GDP growth over the next two years.

The study does not reflect on the nature of past practices of land ownership in South Africa, although it implicitly acknowledges the need for land reform – conducted in a pragmatic manner that does not impact negatively on the crucial demand component of capital formation and, ultimately also on the whole economy.

The study is intended to complement the array of submissions that have been made over the past three years on the topic of EWC. As such, the purpose is to point out a plausible quantitative assessment of the likely effects on the South African economy if EWC is pursued in a manner that would deter capital formation in the economy.

2 Objectives and structure of study

The key to understanding the gist of this study lies in the indisputable positive correlation between investment in productive assets (known as capital formation in economics), and economic growth. This positive causality is subject to a lagged effect, the duration of which will depend on the nature of the investment and the relevant sector. Two examples of theses lags are the expansion of an electricity grid, which can take many years to complete, whilst a new retail outlet can be up and running in a matter of weeks.

Substantial empirical research confirms a strong causality between capital formation and economic output (GDP). It stands to reason that, once a particular enterprise has reached full production capacity, the only way to significantly expand output is via investment in new working capital. Capital formation occurs via infrastructure (roads, electricity supply, dams & water reticulation systems), which is the domain of the public sector and via the investment in productive assets of private business enterprises (land, buildings, machinery, vehicles and computers).

One of the reasons for the strong relationship between capital formation, on the one hand, and economic growth & employment creation, on the other hand, is related to the sheer size of this major component of aggregate demand, which typically ranges between 35% and 40% of GDP in developing countries and around 20% of GDP in advanced economies. This gap is obviously related to the fact that a critical mass of infrastructure has already been created in most advanced nations, which essentially only require maintenance, upgrading and adaptation to new technological advancements. In 2017, the world average for capital formation was 23.3% of GDP. At a level of 19.7%, South Africa is lagging substantially behind its peers and the real value of capital formation in 2017 was lower than in 2014. The National Development Plan (NDP) states that South Africa needs a capital formation/GDP ratio of 30% to secure growth of above 6%.

Legitimate concern exists over the potential negative effects that a policy of radical land reform could exert on the economy of South Africa, especially due to the long-term damage that a lower propensity for capital formation could inflict on the country's ability to grow at rates commensurate with creating adequate employment opportunities and generating the taxation revenues necessary for poverty alleviation.

Against this background, the study objectives are as follows:

To quantify the likely macroeconomic impact of land expropriation without compensation (EWC) in South Africa, based on:

- *a calculation of declines in capital formation/GDP ratios that have occurred in countries that have implemented EWC , and*
- *applying a proxy of these declines to an econometric model of the South African economy, aimed at forecasting the effect of EWC on the country's GDP and fiscal revenues*

Adequate levels of productive capacity in an economy are required to sustain growth and employment. Capital formation is strategically important to an economy and represents the pivotal theme for this study. At the outset, therefore, section three provides a concise overview of the definition and nature of capital formation and its over-arching impact on the economy. This section relies on a literature study of authoritative research, including econometric analyses, of the causalities between capital formation and a range of key economic indicators, including GDP growth, foreign direct investment, employment and exports.

The ultimate focus of the EIA conducted in this study is to quantify the impact of a policy of land expropriation without compensation on key economic variables, including GDP, employment and taxation revenues, as a result of a subsequent decline in capital formation as percentage of GDP. A supporting literature study of countries that have pursued policies of EWC reveals an unequivocal trend for capital formation/GDP ratios to decline in the aftermath of such policy interventions.

All of them subsequently experienced the debilitating effects on their economies that follow policies of EWC, whilst some of them have recovered after a subsequent reversal of this policy approach. In these cases, enhanced levels of economic freedom (including the restoration of private property rights) and the encouragement of private sector business development exerted an equally predictable positive impact on capital formation/GDP ratios.

The methodology that was followed for quantifying the extent to which capital formation/GDP ratios change in response to the implementation and/or subsequent reversal of policies of EWC is described in section four (in table format). In section five, the data gleaned from changes to capital formation/GDP ratios from selected country case studies that are regarded as relevant to the issue of EWC in South Africa are summarised in a table and in graphical format. This is preceded by a more detailed overview of the experiences of the two countries that provide the most recent case study evidence, namely Zimbabwe and Venezuela.

The main purpose of the country case studies is to determine a range for the degree to which capital formation/GDP ratios *decline* in the short to medium term, after the implementation of policies linked to EWC, as well as the subsequent *increases* in these ratios that occur after the incentive for productive economic activity inherent in private property ownership has been restored (either fully or partially).

The results of the ratios determined in these case studies (in section five) serve as justification for two scenarios depicting the likely effects of declines in capital formation/GDP ratios in South Africa, assuming that EWC is pursued. These effects are determined in section six (via an econometric modelling exercise), with the focus on the impact on the country's GDP and also on fiscal stability, specifically the anticipated change to the budget surplus/GDP ratio.

It should be pointed out that both of the scenarios used for the forecasting exercise are based on relatively conservative assumptions of declines in capital formation as a percentage of GDP (compared to the results of the country case studies). The forecasting period covers nine quarters from its commencement in the 3rd quarter of 2020.

The concluding section summarises the forecast effects of EWC on South Africa's GDP and indicators of fiscal stability, with reference to the inherent superiority of an institutionalised economic system based on free enterprise principles and economic freedom, in general.

3 The socio-economic significance of capital formation

Capital is one of the four groups of production factors encountered in the supply-side equation and is an indispensable requirement for economic output. The positive relationship between capital and growth is a universally acknowledged tenet of macroeconomic theory.

A society's capital stock consists of goods that have already been produced and are utilised for the purposes of increasing the supply of goods and services in the economy. For example, once a factory has reached full capacity, it requires additional economic capital (in the form of buildings and machinery and equipment) in order to increase its output.

Another example that is relevant to South Africa is the capital embodied in the electricity utility. Unless new sources of energy are developed and installed into the electricity grid, power outages will occur, which will curtail a country's ability to expand economic output (and to create jobs).

The ultimate focus of this study is an economic impact assessment of a decline in the ratio of capital formation to GDP. Due to the integral role of capital formation, it is deemed necessary to provide a thorough overview of the concept, including the results of a literature study that confirm the causalities that are inherent in the key variables of the econometric model.

3.1 Capital formation defined

According to most authoritative textbooks, capital is a broad term which may be used in either an economic context or a financial context (Botha 2007). To the economist, capital is defined as: *The physical assets that are utilised to produce other goods and services*. Economic capital represents one of the four traditional production factors in a market economy.

Examples are buildings, machinery, computers and transport equipment. Until a decade ago, it was common for capital formation to be described as *gross fixed investment* and the term *fixed investment* is often still encountered in research documents dealing with infrastructure and the expansion of productive capacity by the private sector.

Capital formation occurs when some portion of a country's national income is invested in assets and facilities that serve to augment value added in the economy in future. When combined with the other three sets of production factors (labour, natural resources and entrepreneurship), goods and services are produced and, via a range of taxes on economic activity, this provides government with the fiscal resources required for basic public services (especially public health and education), the maintenance of law and order in society and infrastructure. The latter involves both the creation of new infrastructure to meet the rising demands of a growing population (a key component of capital formation) and the maintenance of existing infrastructure.

Most of the definitions of infrastructure in economic literature, including Todaro (2000) and the World Bank (1994) emphasise the crucially important role of infrastructure in raising productivity, and, by inference, a nation's international competitive advantage. The Development Bank of South Africa's formal definition of infrastructure (1998) is depicted in box 3.1. Examples of private sector capital formation include office buildings, commercial vehicles, tractors, irrigation systems, factories, process computers, machinery & equipment. Examples of public sector capital formation, generally known by the term "infrastructure", are also provided in box 3.1.

Box 3.1: The Development Bank of Southern Africa's definition of infrastructure

Economic infrastructure is that part of an economy's capital stock that produces services to facilitate economic production or serves as inputs to production (e.g. electricity, roads, dams and ports) or is consumed by households (e.g. water, sanitation and electricity). It can be divided into three categories:

- *Public utilities (electricity, gas, water, telecommunications, sanitation, sewerage and solid waste disposal)*
- *Public works (water catchment in dams, irrigation and roads)*
- *Other transport sub-sectors (railways, roads, seaports, airports and urban transport systems)*

Social infrastructure facilitates services such as health, education and recreation and has both a direct and an indirect impact on the quality of life.

Government plays a vital role in augmenting a country's capital stock through infrastructure development and also by providing a stable macroeconomic environment and policies that serve to incentivise and support private sector investment in new productive capacity.

When these two sources of capital formation – the state and private businesses – act in harmony to ensure an adequate rate of expansion of a country's fixed capital stock, the capacity of an economy to increase output, employment and fiscal revenues is augmented, both in the short term and the long term.

3.2 The strategic importance of infrastructure

The development of a modern and prosperous society is directly linked to the development of infrastructure. This key component of capital formation plays an indispensable role in enhancing a developing country's ability to provide a sound basis for incentivising private sector capital formation, economic growth and employment creation. Inadequate capital formation in agriculture leads to food shortages and rising food prices, which often result in social unrest (Bellemare, M F: 2014)

In the absence of transport and other logistics systems, most markets would cease to exist, employees would not be able to commute, medicine would not be available in clinics and the world would regress back to the pattern of a subsistence economy. In the absence of adequate supplies of water, food production would falter and societies would be faced with the prospect of famine and the rapid spread of diseases.

A study by Fedderke *et. al.* (2006), acknowledged the important role that productive public expenditure in the area of infrastructure (such as roads, transportation, and housing) can play in promoting economic growth and encouraging private investment. The study applied Johansen's co-integration procedure, impulse response functions, variance decomposition analysis and Granger causality tests to shed light on these relationships.

Their time-series study sought to explain the relationship between investment in economic infrastructure and long-run economic growth by examining the experience of South Africa. The main finding that emerged was that investment in infrastructure appears to lead economic growth in South Africa and does so both directly and indirectly (the latter by raising the marginal

productivity of capital). Although the feedback from output to infrastructure did not seem strong, the finding of an infrastructure growth impact was robust.

Like most things in life, infrastructure is not free. Infrastructure facilities mostly exhibit the classic characteristics of public goods, which require fiscal intervention. Taxation revenues and government bond issues are most often utilised to finance the establishment of new infrastructure. These funding sources emanate mainly from economic activity by private business enterprises and individuals, most of whom are employed in the private sector.

The array of advantages that a society derives from adequate investment in appropriate infrastructure, including the following:

i. Unlocking of factor and product markets

The existence of roads in the development of markets, particularly in rural areas, has traditionally enjoyed particular prevalence in establishing infrastructure priorities. Research by Gilles, *et. al.* (1992), confirms that the absence of good roads can increase the cost of producing surplus crops by as much as 100%. Irrigation provides a further example of the powerful effect that infrastructure investment can exert on the productivity of factor markets, whilst a modern, industrialised economy simply cannot function properly in the absence of a reliable supply of electricity.

ii. Contribution to GDP

Public sector capital formation represents an indispensable element of economic activity. The productive investments by the private sector to augment new output capacity through factories and equipment will not yield adequate returns unless they are supplemented by social and economic infrastructure. The latter serves to integrate the economic activities of private businesses.

iii Economic multiplier effects

Research conducted by Lockwood (2010) to determine an objective estimate of the social and economic impact of a development finance fund similar in nature to the Risk Capital Facility administered by the Industrial Development Corporation (IDC) confirms the existence of strong capital formation multiplier effects in South Africa. Under the assumption that the facility would have an initial capital base of R250 million – matched by a further R250 million, on a project-by-project basis by the IDC, it was concluded that, in total, additional output of up to R2.1 billion could be directly supported over three years.

iv Positive rates of return on investment

Consensus exists that infrastructure investments produce relatively high rates of return. Research by Easterly and Rebelo (1993), covering a large sample of developing countries, confirmed the existence of a rate of return of 63% on transportation and communication projects.

v Alleviation of poverty

As emphasised by the DBSA (2006), developmental infrastructure can make a huge difference to reducing poverty and includes reducing the vulnerability of poor people through health facilities, adequate nutrition, an improved work and study environment, access to information through the media, and more time spent on productive activities.

vi Contribution to employment creation

Beyond a certain level of output growth (depending on the multiplier effects of the different sectors of economic activity), both formal and informal sector employment will be created by an increase in capital formation (World Bank - 1994).

vii Contribution to taxation revenues

A further important macroeconomic effect that was calculated in studies by Botha and Lockwood (2007) relates to government revenues (the so-called fiscal backflow effect). In essence, this effect is created as a result of the fact that most of the processes involved with the generation of value added (GDP) in the economy are subject to tax.

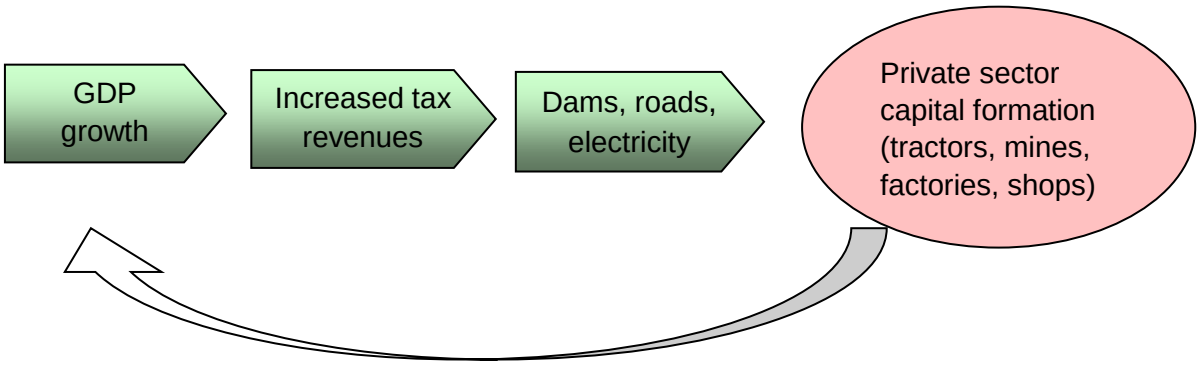
vii International competitiveness

International agencies are continuously producing surveys and reports on the perceived investment risk and competitiveness of advanced economies and developing countries alike. The imperative of sufficient and modern infrastructure in enhancing a country's attractiveness as a destination for foreign direct investment is underscored by the World Bank (1994). Surveys by prospective international investors invariably include detailed reference to the range and quality of infrastructure, which is a key factor in attracting FDI.

3.3 Capital formation and economic growth

Empirical research into the role of capital formation in the process of economic growth provides irrefutable evidence of a positive causal relationship. In a ground-breaking study published in the *Journal of Economic Policy Reform* by Uneze (2013), titled: *The relation between capital formation and economic growth: evidence from sub-Saharan African countries*, it was found that causality is bi-directional.

The causality is quite simple and can kick in at any point in the circular diagram below. Tax revenues can be augmented by loans (government bond issues) to assist with the financing of infrastructure creation.



The conclusion that has also been arrived at by research in other regions is that higher economic growth leads to higher capital formation and that in turn, increases in capital formation result in higher economic growth. These results hold irrespective of whether capital formation is measured by private fixed capital formation or by total capital formation (which includes expenditure on economic and social infrastructure by government and other public sector agencies).

Research into the role of fixed investment in the process of economic development published in *The Journal of Development Studies* by Schatz (1968) pointed out the misconception that

factors such as entrepreneurship and technological advances are relatively more important than capital formation. Statistical evidence clearly restates the primacy of capital formation and Schatz makes the point that differences of opinion on the respective roles of all the production factors are often ideological and not based on fact.

Whilst it is true that a high rate of fixed investment represents just one of many requirements for sustained growth and development, any reasonable statement of the capital-emphasis view always acknowledges that other development requirements have to be implemented in tandem for capital formation to have its full effect.

Irrefutable proof exists that confirms the indispensable role of capital formation in stimulating economic development. Sufficiently large amounts of investment in infrastructure and private sector productive capacity are necessary for the following reasons (*inter alia)*:

- Capital formation and economic growth are highly correlated
- Capital deepening and capital widening are not possible without large initial amounts of fixed investment
- Technological progress is dependent on a critical mass of relatively sophisticated economic capital, otherwise backward production methods requiring little capital continues to expand the subsistence sector at the expense of a modern market sector with higher value added ratios and a greater positive fiscal impact
- Capital formation is highly correlated with skills development, employment creation and the expansion of fiscal revenues

Due to the limited capacity for sufficient domestic sources of funding for capital formation at any point in time, it stands to reason that foreign direct investment (FDI) has the potential to augment a country's productive capacity without placing undue pressure on the costs of domestic financing (via money market and capital market interest rates).

3.4 The role of exports and foreign direct investment

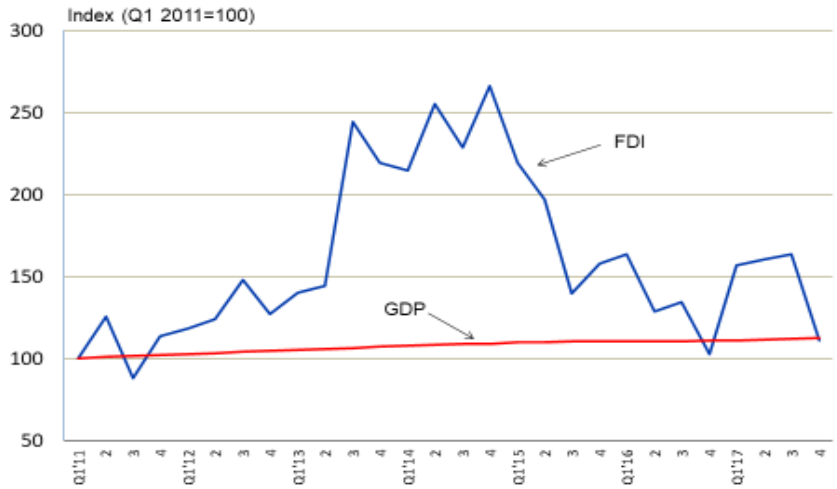
In a study published in 2017, Botha *et. al.* investigated the largely unresolved question of whether higher export growth leads to higher economic growth, which, interestingly, provides an important dimension to the link between export growth and private sector capital formation. Quarterly time series data ranging from the first quarter of 1975 to the fourth quarter of 2012 were employed in the study's empirical tests.

The results support the notion that the role of exports lies in their ability to encourage investment and capital formation. While export growth directly supports higher economic growth in the short-run, the long-term effect was found to lie in supporting faster capital formation, and in turn, significantly increasing economic growth. A key conclusion was that a strategy of export-led growth that does not explicitly emphasise the connection between exports, capital formation and economic growth is likely to fall short of reflecting the dynamics contained within the export/economic growth relationship in South Africa.

The relevance of this conclusion to the question of EWC should be clear: for an emerging market of South Africa's size (in terms of GDP) to be able to export manufactured products, inward foreign direct investment (FDI) is often a pre-requisite. The sector for motor vehicles and components acts as an example. Global brands such as Mercedes-Benz, BMW, Toyota and Nissan have substantial direct investments in property and productive assets in several provinces.

It is clear from the trends depicted in figure 3.1 that one of the several reasons for lethargic economic growth in South Africa over between 2015 and 2017 was related to a declining trend in FDI. Low GDP growth was also caused by subdued growth in exports and the low levels of business confidence that became apparent after comprehensive evidence of state capture during the Zuma administration became visible, as has been demonstrated by the proceedings at the Zondo Commission of Enquiry into State Capture.

Fig 3.1: Trends for quarterly inflows of foreign direct investment (FDI) and real GDP *(Sources: SARB; own calculations)*



There can be no doubt that a policy of EWC will serve to discourage further investments by multi-national companies that employ vast numbers of South African workers and make huge contributions to the country's tax base (directly and indirectly). Furthermore, competition for FDI within the African continent is mounting, with several global car-makers recently having invested in manufacturing plants in other African countries.

In an article that appeared in *Cogent Economics & Finance,* Sothan (2017), adds to the literature on the relationship between foreign direct investment (FDI) and economic growth, via a Granger econometric causality test.

The empirical results provide strong evidence of the causal impact of FDI on Cambodia's economic growth (GDP). In Cambodia, as in many other developing countries, FDI acts as a strong driver of economic growth.

3.5 Fixed investment and job creation

A recent study by Meyer & Sanusi (2019) examined the issue of causality between domestic fixed investment, employment and economic growth using South African data. The study made use of quarterly data from the first quarter of 1995 to the first quarter of 2016 within the framework of the Johansen co-integration and Vector Error Correction Models (VECM).
The empirical findings suggest that a long run relationship exists between domestic investment, employment and economic growth. The results also demonstrate that investment has a positive long-run impact on employment.

The empirical evidence further suggests bi-directional causality between employment and economic growth, while evidence of uni-directional causality, from investment to employment, is also found. Investment is found to be a positive driver of employment in the South African economy in the long-run.

The study concludes that, in order to stimulate employment, investment enhancing policies, such as low interest rates and a favourable economic environment should be put in place to accelerate growth.

3.6 The need for a strategic approach

Emerging markets (such as South Africa) require a strategic approach towards creating an environment that is conducive to capital formation growth, due to the influence of factors that are not controllable by government. Table 3.1 lists the wide range of factors that influence the level of investment in new productive facilities and infrastructure.

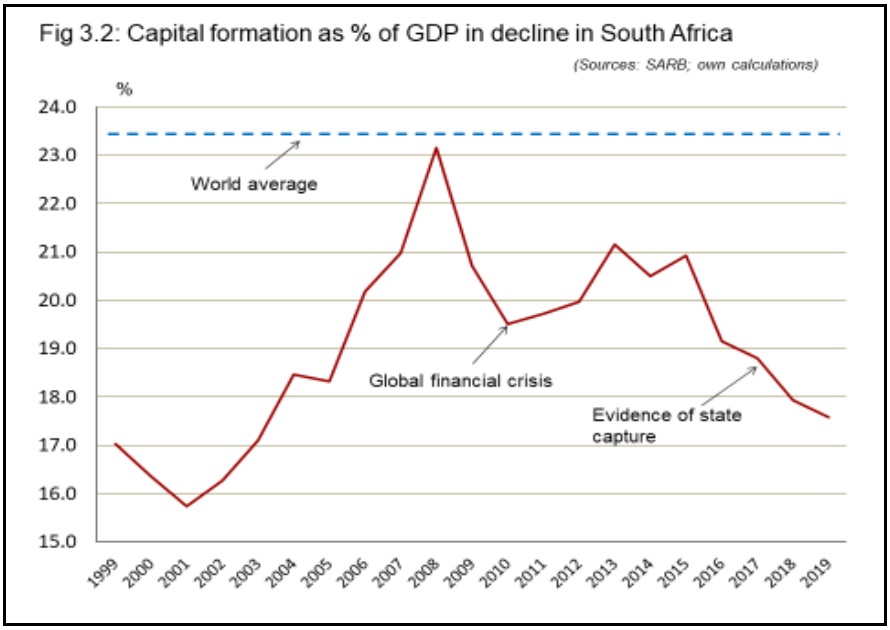
Table 3.1: Key factors that influence the level of capital formation in emerging markets and developing countries

The domestic exchange rate
Exchange rates of key global trading partners
Exchange rates of other emerging markets
Domestic interest rates (money market and capital market)
International capital market interest rates
The level of domestic labour costs
The flexibility of the domestic labour market
Physical and monetary asset depreciation
Government's debt profile and debt requirements
Sovereign bond credit ratings
Domestic demand for goods and services
The scope and quality of existing infrastructure
Demographic trends, including urbanisation
Investor confidence (both domestic and global)
Government support via fiscal incentives and policy certainty
Protection of physical and intellectual property rights
Development of new technologies

It should be clear from this list that a government wishing to enhance the economic welfare of its citizens should take care to ensure that its domestic policies and regulations do not deter capital formation, but rather incentivise the expansion of production capacity.

3.7 South Africa's disposition with regard to capital formation

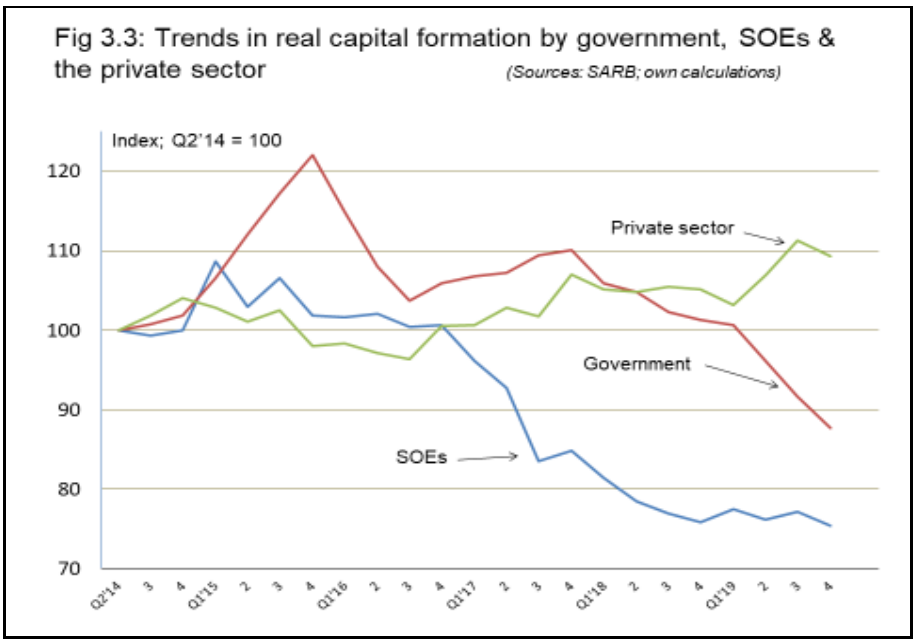
In recent years, South Africa has experienced a significant decline in the ratio of capital formation to GDP (see figure 3.2). Further concern is also related to the inability of the country to match the global average over the past two decades of 23.5%.



Following a significant upward trend in this indicator between 2001 and 2008, during which the economy enjoyed high growth, the global financial crisis of 2008/09 predictably led to a lowering of the tempo of capital formation (due to the recession and fiscal constraints).

A modest resurgence occurred between 2010 and 2015, when investor confidence has recovered and the previous governor of the Reserve Bank followed an accommodating monetary policy.

Unfortunately, the worsening standards of corporate governance in the public sector at large, especially at key state-owned enterprises, took their toll on business confidence, whilst the change of the guard at the Monetary Policy Committee (after the retirement of Gill Marcus), led to restrictive monetary policy, ultimately increasing the cost of capital by more than 100% (via an increase in the real prime rate from an average of 3% to more than 6%).



It is a point of concern that the public sector seems to be neglecting the crucial areas of investment in the components of capital formation that represent intellectual property. The private sector spends three times as much as government on research and development associated with capital formation and more than four times as much on information and communication equipment (including software).

It is also evident from the trends in figure 3.3 that the private sector at large has not forsaken its commitment to invest a meaningful portion of retained income in the expansion of the country's productive asset base. Unfortunately, this does not hold for the public sector, with both government and the state-owned enterprises (SoEs) having neglected spending on infrastructure and other forms of capital formation.

3.8 Concluding notes

The value of privately-owned property embodies one of the fundamental sources of collateral whereby most of the funding for fixed investment is secured. The adoption of a policy of land expropriation without compensation would severely curtail the propensity of the private sector to channel a significant portion of retained earnings towards capital formation and would, in fact, be tantamount to self-inflicted economic sabotage, especially against the background of the public sector's inability since the advent of state capture to address dire infrastructure backlogs.

It is important to note that insufficient levels of capital formation in the present ultimately serve to restrict a country's economic growth capacity in the future, as it embodies the expansion of the assets necessary for growth and employment creation. It should also be pointed out that new fixed capital formation needs to exceed the consumption of the existing fixed capital for there to be a quantitative and/or qualitative improvement in the total fixed capital stock of a country. Only when this holds will an increase occur in the production, growth and employment creation capacity of the economy.

Creating an environment that is conducive to capital formation is therefore viewed as an overriding priority in the formulation of economic policy. High interest rates, which raise the cost of capital, inadequate infrastructure, socio-political unrest, widespread corruption, high levels of crime and the absence of constitutional guarantees for private property rights are factors that deter private sector capital formation. Unfortunately, such circumstances lead to a vicious cycle whereby the absence of a sustained and sufficient expansion of productive capacity causes sub-optimal economic growth and higher unemployment (*ceteris paribus)*.

As an inference, these circumstances will also curtail the growth of taxation revenues, which may lead to fiscal instability and will restrict the ability of a government to maintain and expand the infrastructure which underpins all aspects of economic activity.

This study has isolated the impediment to capital formation that occurs when private property rights are not guaranteed, as quantified by the causalities determined in the country case studies (section 5).

4 Methodology utilised for the calculation of a proxy for the effect of land expropriation without compensation on capital formation

Table 4.1: Methodology employed for the macroeconomic impact assessment of a policy of land expropriation without compensation (EWC)

Steps	Methodology
1	Literature study aimed at identifying countries that have implemented policies associated with radical land reform, including the expropriation of land without compensation (EWC)
2	Selection of the following countries, representing four different World regions (some of whom have reversed policies linked to EWC): Spain, Portugal, Romania, Vietnam, Venezuela, Ethiopia and Zimbabwe
3	Literature study of the history of the selected countries, in order to determine the dates upon which policies linked to EWC were implemented and, in certain cases, the dates when these policies were reversed (partially or fully) and/or market reforms were implemented
4	Analysis of time-series data on the capital formation/GDP ratios of the selected countries, in order to determine the extent to which these ratios responded to policies linked to EWC & policies aimed at incentivising private sector capital formation
5	Calculation of the percentage changes to the capital formation ratios determined in step 4. In cases where ratios increased as a result of free enterprise reforms aimed at greater security of tenure and the restoration of private property rights, the reciprocal was utilised for inclusion in the calculation of the average % change
6	Calculation of the average percentage change in capital formation/GDP ratios experienced by the case study countries. This was based on a weighting of each country's ratio changes in terms of the period during which the change occurred
7	Analysis of time-series data for the case study countries of the following key indicators: nominal GDP, real GDP growth, *per capita* GDP; government revenues, terms of trade and global disposition with regard to economic & political freedom - in order to supplement the case studies with notes regarded as relevant to the study
8	Application of two different scenarios for assessing the impact of a decline in capital formation/GDP ratios in South Africa via an econometric model. Both of these scenarios are regarded as conservative when compared to the average capital formation declines for the case study countries determined in step 6 and may be described as best case and worst case scenarios.
9	Application of the negative impact on South Africa's GDP over a nine-quarter period (in step 8) to the key macroeconomic indicators of government taxation revenues and the fiscal debt as a percentage of GDP. This serves to inform the conclusions regarding fiscal stability and the credit rating status of South Africa's sovereign bonds (the specific steps followed are listed in sub-section 6.4).

5 Effect of EWC on capital formation/GDP ratios - country case studies

5.1 Rationale for country case study selection

The decision on which countries to include in the case studies relating to the effect of changes to capital formation/GDP ratios induced by policies of land expropriation without compensation (EWC) was guided by the following requirements for a representative sample group:

- Adequate and reliable data sources on capital formation and GDP
- A clear indication of the implementation of policies of EWC
- Global representation
- Two-directional changes, i.e. negative capital formation trends following policies of EWC (also often referred to as nationalisation) and vice versa (after a reversal of such policies via the full or partial restoration of private property ownership)

Following a preliminary literature study, seven countries were selected, viz. Portugal and Spain (Western Europe), Romania (Eastern Europe), Vietnam (Asia), Venezuela (South America) and Ethiopia and Zimbabwe (Africa).

The advantage of expanding the analysis to also include remedial policy implementation that inevitably follows the fairly predictable negative impact on capital formation caused by EWC is to enlarge the sample size of capital formation/GDP ratio changes used for the calculation of an average ratio (to serve as a proxy for the dependent variable in the econometric modelling exercise).

In these cases, the reciprocals of subsequent positive changes to capital formation trends were used in the calculation of the overall average change to the EWC-induced capital formation/GDP ratio (which is a negative value).

In the case of certain countries, positive changes to capital formation/GDP ratios prior to the imposition of EWC were also included in the calculation of the average ratio, which eventually swelled the data sample for the seven countries to a total of 18 values.

The determination of the point in time when policies of EWC were either implemented or abandoned or where economic policy was underpinned by private property ownership for the different countries was guided by a literature study on the modern political and economic history of these countries.

The rest of this section will provide data-maps for the seven countries, containing all the relevant variables and calculations for the determination of the average decline in capital formation as a percentage of GDP that occurs when a policy of EWC is implemented. For purposes of concise illustration of salient trends identified in the country analyses, a number of graphs have been included.

Concise historical overviews of the two countries that are regarded as the most relevant for purposes of gaining insight of the inherent dangers of a radical approach to land reform have also been included (Zimbabwe and Venezuela).

The section concludes with a summary of the country data-maps.

5.2 Country data-maps and graphs

i. Portugal

Table 5.1: Data map: Portugal

Effects of land expropriation without compensation

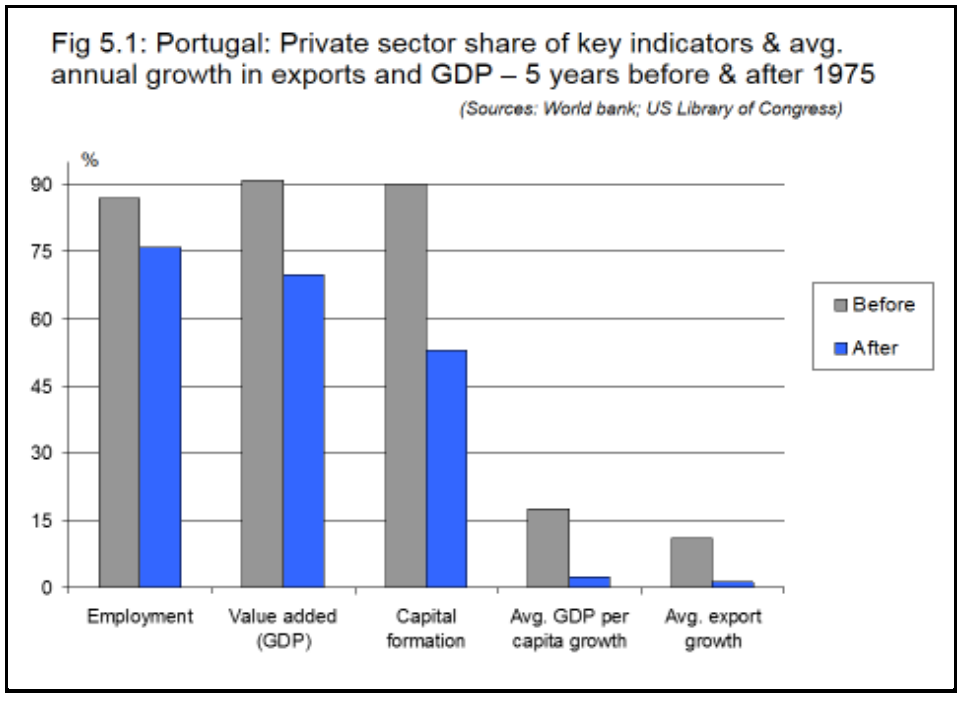
Indicator	Period	% decline
Nominal GDP	1980 - 1984	-20.4
Investment/GDP ratio	1981 - 1986	-32.2

Effects of a gradual return to free enterprise

Indicator	Period	% increase
Nominal GDP	1989 - 2009	96.8
Investment/GDP ratio	1986 - 1988	24.4
Per capita GDP (in real terms)	1989 - 2007	81.2
Improvement in terms of trade since the 1982/83 market reforms	1985 - 1992	22.4

Notes:

1. 6th highest annual average rate of growth of GNP per capita in the world (outside Asia) between 1980 and 1992 - 3.1%
2. Decline in cereal imports from 3.4 million tonnes in 1980 to 2 million tonnes in 1992



ii. Spain

Table 5.2: Data map: Spain

Effects of land expropriation without compensation

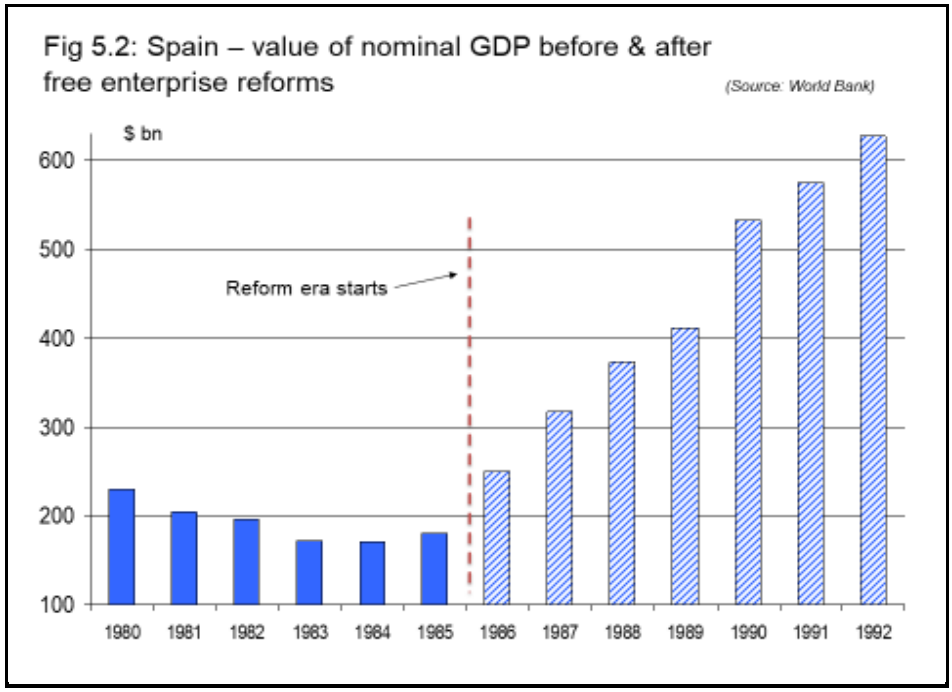
Indicator	Period	% decline
Nominal GDP	1980 - 1984	-25.7
Investment/GDP ratio	1980 - 1984	-13.2

Effects of a gradual return to free enterprise

Indicator	Period	% increase
Nominal GDP	1984 - 1990	211.7
Per capita GDP (in real terms)	1981 - 1990	30.7
Improvement in terms of trade since the 1982/83 market reforms	1985 - 1992	25.8
Increase in average annual Investment/GDP ratio since the 1982/83 market reforms	1970 -'80 & 1980 - '92	293.3

Notes:

1. 7th highest level of value added in agriculture for high income and upper-middle income countries in 1992 - $21 billion
2. Decline in cereal imports from 6.1 million tonnes in 1980 to 3.8 million tonnes in 1992



iii. Romania

Table 5.3: Data map: Romania

Effects of land expropriation without compensation

Indicator	Period	% decline
Nominal GDP	1981 - 1992	-64.2
Investment/GDP ratio	1993 - 1999	-45.8
Per capita GDP (in real terms)	1986 - 1999	-24.3
Government revenue/GDP ratio	1991 - 1997	-31.8

Effects of a gradual return to free enterprise

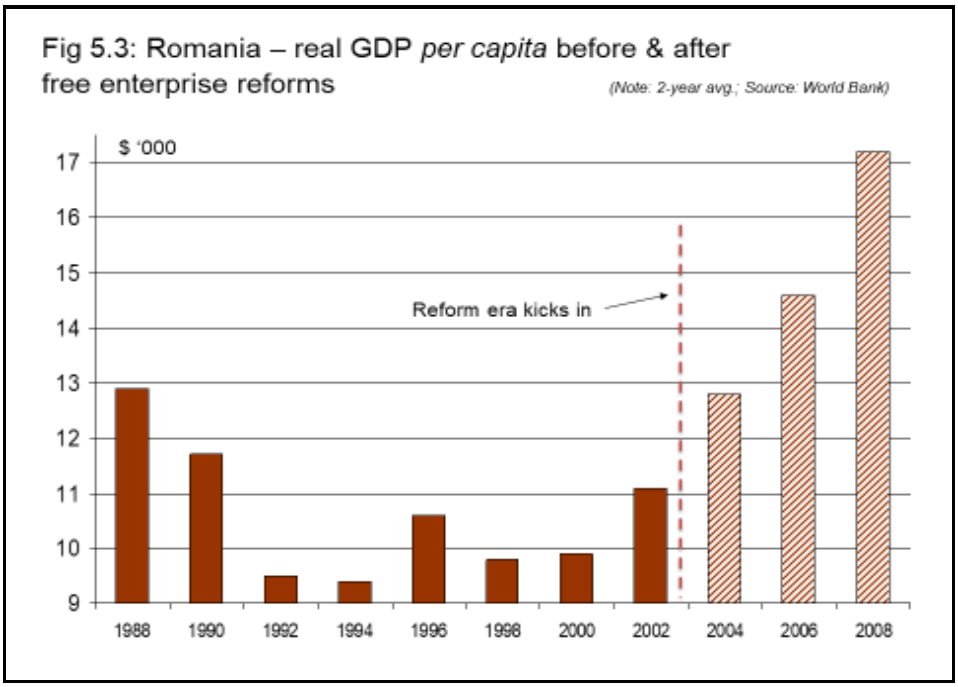
Indicator	Period	% increase
Nominal GDP	1999 - 2017	484
Investment/GDP ratio	1999 - 2017	57.1
Per capita GDP (in real terms)	1999 - 2017	128.7
Government revenue/GDP ratio	1997 - 2006	14

Notes:

1. In 2014, Romania became a contributing member of the International Development Association (IDA),

through which the Bank provides concessional financing to its lowest-income borrowers,

marking a milestone in Romania's evolving role as a donor of the World Bank



iv. Vietnam

Table 5.4: Data map: Vietnam

Effects of land expropriation without compensation

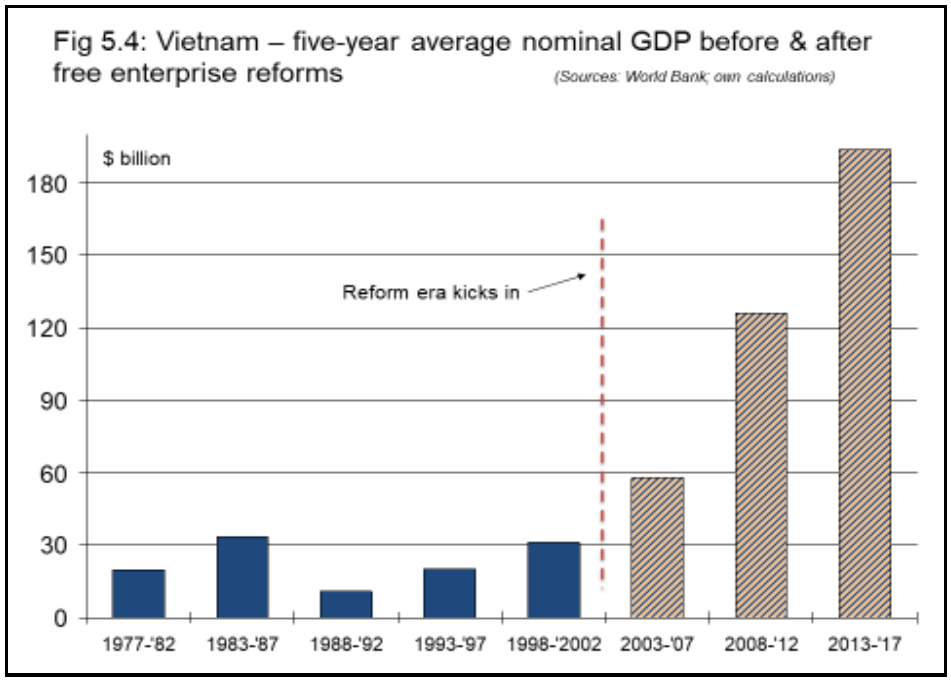
Indicator	Period	% decline
Nominal GDP	1980 - 1990	-76.8
Investment/GDP ratio	1980 - 1991	-40.0

Effects of a gradual return to free enterprise

Indicator	Period	% increase
Nominal GDP	2000 - 2017	607
Per capita GDP (in real terms)	2000 - 2017	79.3
Increase in average annual export/GDP ratio since the 2000 market reforms	2000 - 2017	143.3
Increase in average annual Investment/GDP ratio since the 2000 market reforms	2000 - 2017	142.5

Notes:

1. Since the 2000 reforms towards a free enterprise system, Vietnam has experienced a surge in capital formation in export-orientated industries. The country boasted the 5th highest ratio of exports to GDP in 2017 (more than 100%)



v. Ethiopia

Table 5.7: Data map: Ethiopia

Effects of land expropriation without compensation

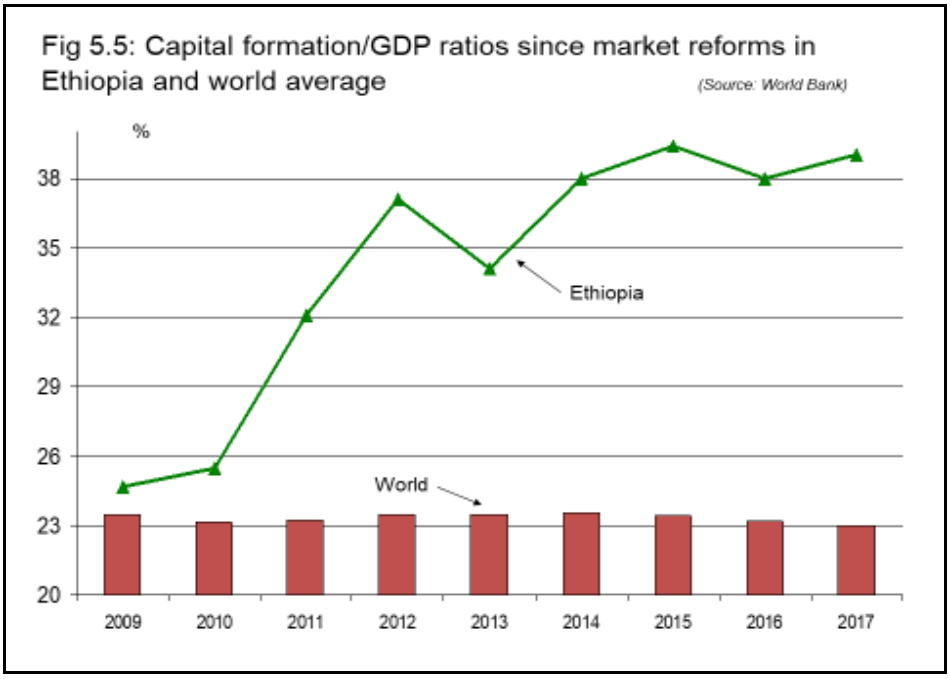
Indicator	Period	% decline
Nominal GDP	1992 - 2002	-46.6
Per capita GDP (in real terms)	1992 - 2002	-30.1
Investment/GDP ratio	1988 - 1991	-49.5

Effects of a preliminary return to free enterprise

Indicator	Period	% increase
Nominal GDP	2002 - 2017	930.1
Per capita GDP (in real terms)	2003 - 2017	216.8
Investment/GDP ratio (phase 1)	1992 - 1996	65.3
Investment/GDP ratio (phase 2)	1999 - 2004	64.8

Notes:

1. 2nd poorest country in the world in 1992 (GNP *per capita* of $110)
2. In 2017, GDP *per capita* had increased to approx. $2,000 (at PPP)



vi. Zimbabwe

Table 5.5: Data map: Zimbabwe
Effects of land expropriation without compensation

Indicator	Period	% decline
Nominal GDP	1998 - 2008	-44.6
Investment/GDP ratio (1)	1997 - 2000	-92.0
Investment/GDP ratio (2)	2010 - 2013	-48.5
Per capita GDP (in real terms)	1998 - 2008	-52.2

Effects of an earlier alignment to free enterprise

Indicator	Period	% increase
Nominal GDP	1984 - 1990	59.8
Investment/GDP ratio	1992 = 1997	25.0

Notes:

1. Real GDP shrunk by 51% between 1999 and 2008
2. Ten successive years of real GDP declines between 1999 and 2008
3. Ranked in the bottom 10% for 34 different indicators of international competitiveness
4. Unemployment rate estimated at 95%
5. Domestic currency abandoned in 2009 & demonetised in 2015 (replaced by US dollar & SA rand)
6. More than half of Zimbabwe's population dependent on food aid in 2009
7. 11th lowest life expectancy in the World in 2015 (54.8 years)

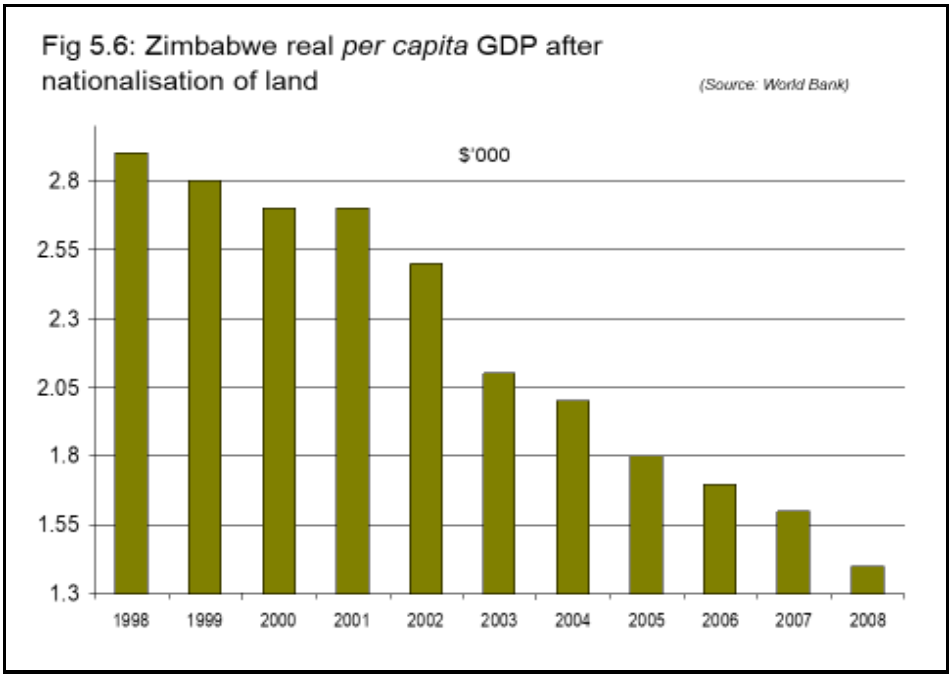


Table 5.6: Indicators of global competitiveness for which Zimbabwe is ranked in the bottom 10% in the World (out of 137 countries)

Property rights	Country capacity to retain talent
Public trust in politicians	Country capacity to attract talent
Efficiency of government spending	Affordability of financial services
Burden of government regulation	Ease of access to loans
Favouritism in decisions of government officials	Soundness of banks
Burden of government regulation	FDI and technology transfer
Government budget balance	Local supplier quantity
Country credit rating	Local supplier quality
HIV prevalence	State of cluster development
Life expectancy	Nature of competitive advantage
Time to start a business	Value chain breadth
Agricultural policy costs	Control of international distribution
Trade tariffs	Production process sophistication
Business impact of rules on FDI	Capacity for innovation
Burden of customs procedures	Quality of scientific research institutions
Flexibility of wage determination	Company spending on R&D
Hiring and firing practices	University-industry collaboration in R&D

Source: *World Economic Forum*

Zimbabwe – Historical context

Introduction

During the first two decades of independence, Zimbabwe enjoyed an expansion of its economy. Between 1984 and 1990, the country's nominal GDP swelled by 60% and a fixed investment ratio of 25% of GDP was maintained. At the turn of the century, however, Zimbabwe's economic fortunes took a turn for the worse, with land grabs, violent opposition to political opponents of Robert Mugabe's ruling Zimbabwe African National Union (ZANU) and mass migration becoming the order of the day.

Volumes have been written about the tragic reversal of economic growth and prosperity in Zimbabwe that followed the government's decision to expropriate land without compensation. Due to the country's proximity and close historical ties to South Africa, it is regarded as prudent for a measure of elaboration on the causes of the steep decline in the welfare of Zimbabwe over the past 20 years.

The following sub-section has been prepared as an essay, which has been informed by the following data sources (detail supplied in the bibliography):

- Sihlobo & Kapuya (2018)
- Merdedith (2007)
- Mavhinga (2008 and 2010)
- Chan (2003)
- Sanger (2020)
- Brown, *et. al.* (2017)
- The Economist Intelligence Unit (various country reports on Zimbabwe)
- World Bank economic database

Two authors who stand out regarding intensive research work on the modern history of Zimbabwe are Martin Meredith and Stephen Chan. Meredith is a historian, journalist, and biographer. He has won several awards for his well-documented writing, which he is widely regarded as one of the world's most authoritative experts on Africa history. Meredith has written 16 books on Africa and his best-known work is the international best-seller *The State of Africa.*

Stephen Chan is an author and Professor of World Politics at the School for Oriental and African Studies, University of London. In 2010, he was awarded an OBE as acknowledgement for services to Africa and higher education

Land reform – the early years

Following independence in 1980, Zimbabwe initially remained a free enterprise economy with some scope for government intervention, particularly with regard to exchange controls and incentives for further industrialisation.

Land reform was a key theme during the negotiations that led to the end of the Rhodesian Bush War and the signing of the Lancaster House Agreement. In an attempt to secure the approval of a market-related approach towards land reform by the leaders of the Zimbabwe African National Union (ZANU) and the Zimbabwe African People's Union (ZAPU), the British

government offered technical assistance and financial aid for the land resettlement policy. The Lancaster House Agreement stipulated that farms could only be taken from whites on a "willing buyer, willing seller" principle and this was enshrined in Section 16 of the Zimbabwean Constitution of 1980.

Dominant role of agriculture

The purpose of a constitutional clause underscoring property ownership as an inalienable right was to prevent a mass exodus of white farmers and the economic collapse of the country, as the overwhelming majority of Zimbabweans were either directly or indirectly dependent on the agricultural sector supply chain for their livelihood.

During the first phase of Zimbabwe's land reform programme, 3 million hectares of land was redistributed to around 50,000 households and by the end of 1987, the acreage of land occupied by white-owned commercial farms had been reduced by an estimated 20%. This was, however, below the initial targets that were set by the government of Mr Robert Mugabe.

The pace of land reform was also being curtailed by fiscal constraints and a lack of administrative and technical competence within the Ministry of Lands, Resettlement, and Redevelopment. Furthermore, criticism was mounting from the British government over the divergence of funds earmarked for the purchase of white-owned farms into defence expenditure and favouritism by government officials with land allocation.

A new approach towards land reform ensued in 1992 with the adoption of the Zimbabwean Land Acquisition Act, which empowered the government to expropriate any land at will, but not without financial compensation. Zimbabwe managed to secure substantial financial assistance from the British government and international donor agencies to continue with the land reform programme. By 1994, despite the adoption of a so-called "leadership code" to prevent abuse of the land reform policy, a disproportionate amount of the land was being held by fewer than 600 black landowners, many of whom owned multiple properties and most of whom were part of Mugabe's political elite.

It had become clear that, instead of being resettled by landless peasants, most of the commercial farms acquired under the new Act went to politically connected individuals who were absentee owners not otherwise engaged in agriculture.

Violent land grabs

The Zimbabwean economy fared reasonably well between 1980 and 2000, especially as a result of a modest expansion of the supply chain in the agricultural sector and the generation of adequate foreign exchange through tourism and exports of food and mining commodities.

However, the country's economic fortunes changed abruptly in February 2000 when the pro-Mugabe Zimbabwe National Liberation War Veterans' Association (ZNLWVA) organised marches on white-owned farms. This movement eventually managed to force virtually all of the white farmers and their farm workers off their land, usually accompanied by violence.

In 2008, the Southern African Development Community (SADC) Tribunal held that the Zimbabwean government had violated the SADC treaty by denying access to the courts and

engaging in racial discrimination against white farmers whose lands had been confiscated and that compensation should be paid. Mr Mugabe's reaction was to withdraw from the Tribunal.

Zimbabwe's economy started to decline after 2000. Land expropriation without compensation and the demise of an independent judiciary were the overriding causes for the country's dramatic economic decline, which witnessed an exodus of an estimated three million Zimbabweans to neighbouring South Africa.

Fiscal instability was exacerbated by Mugabe's controversial decision in 1998 to intervene in the Democratic Republic of the Congo's civil war, which led to the loss of life of many Zimbabwean soldiers and also resulted in the suspension of international economic aid for Zimbabwe.

Economic decay sets is

In subsequent years, foreign aid and loans to the country were withheld in protest against the radical land reform program and violations of human and political rights and also as in response to Zimbabwe's inability to repay previous loans. Economic mismanagement, rampant inflation, and record-high rates of unemployment worsened the economic situation.

Although the agricultural sector declined dramatically in the early 21st century, it is still an important productive sector of the country's economy. More than one-half of the total labour force is engaged directly in agricultural activities. The redistribution of agricultural land to politically connected persons without adequate farming experience predictably led to a dramatic decline in productivity, which exerted a severe negative impact on the entire agriculture supply chain. Since 2000, Zimbabwe has regressed from a major exporter of food and other agricultural products to a country where food insecurity is rife. Zimbabwe cannot remotely meet its domestic needs for food anymore and international food aid is on-going.

Brain drain

Although Zimbabwe has significant hydroelectric potential, it has not been realised, and the country imports about 40% of the electricity it consumes. Since the turn of the century, energy shortages have resulted in frequent blackouts throughout the country. The road system has not been adequately maintained since the mid-1990s, and much of it has fallen into a state of disrepair. As with the road system, the rail network has also deteriorated. Following the violence and instability that accompanied radical land reform, health services in Zimbabwe deteriorated rapidly.

As was the case with most other professions, many health care providers left Zimbabwe to work abroad, and those that remain do not always have access to medicine and other supplies. In addition, many health care facilities and medical equipment have not been maintained. As a result, the health of Zimbabwe's population declined dramatically, as evidenced by life expectancy that plummeted from 62 years in 1990 to about 38 years in 2000, compared to a global average of 66 years and 78 years in the UK.

Although the long-standing authoritative rule of Mugabe was ended with the assistance of Zimbabwe's armed forces at the end of 2017, the country's status as a failed state remains. It is not possible in the short term to eradicate a legacy of almost four decades of gradual

mismanagement of the public service, the effective abolition of an independent judiciary and the effects of land expropriation without compensation.

Zimbabwe has been relegated from the potential to become only the second official emerging market in SSA to a *de facto* police state with an estimated 95% of the remaining population without formal jobs. The country's currency became worthless and has been abolished, with US dollars and South African rand now used in the economy, which is increasingly being characterised by barter trade.

Table 5.7: % Change in nominal $ GDP between 2000 & 2008 - selected SSA countries

	%
Zambia	397
Ghana	252
Ethiopia	226
Uganda	189
Rwanda	183
Kenya	154
Tanzania	120
Namibia	117
South Africa	110
Mauritius	105
Zimbabwe	-41

Source: *World Bank*

Table 5.7 above vividly illustrates the disastrous results of land expropriation without compensation and the demise of public sector corporate governance in Zimbabwe. It is no coincidence that Zambia has managed to increase its nominal GDP five-fold between 2000 and 2008, as the country benefited from the influx of experienced Zimbabwean farmers.

Zimbabwe has now effectively lost two decades of potential economic expansion, job creation and fiscal resources required for poverty alleviation at the expense of a small dictatorial political elite backed by armed forces that have a reputation for being trigger-happy.

From the enviable status of a significant net exporter of agricultural products prior to the policy of EWC, Zimbabwe has digressed to a country whose citizens rely heavily on international food aid to supplement wholly inadequate domestic food production.

The Zimbabwean country case study of the implications of radical land reform provides irrefutable proof of that EWC ultimately results in intellectual capital flight, low levels of business confidence, inadequate investment in new productive capacity, declining tax revenues, fiscal instability and, ultimately, a failed state.

vii. Venezuela

Table 5.8: Data map: Venezuela
Effects of land expropriation without compensation

Indicator	Period	% decline
Nominal GDP	2000 - 2003	-28.9
Investment/GDP ratio (1)	1998 - 2003	-50.4
Investment/GDP ratio (2)	2013 - 2017	-63.2
Per capita GDP (in real terms)	2012 - 2017	-38.7

Effects of an earlier alignment to free enterprise

Indicator	Period	% increase
Nominal GDP	1984 - 1990	10.9
Investment/GDP ratio	1990 - 1992	132.1

Notes:

1. Cattle herd size declines from 13 million head in 2013 to 8 million in 2018
2. Domestic production of rice, corn & coffee declines by 60% between 2007 and 2017
3. Food imports per capita increases from $75 in 2004 to $370 in 2017
4. Venezualan currency (bolivar) depreciates by 99% between 2013 and 2018
5. In 2010, after the government nationalized the port at Puerto Cabello, more than 120,000 tons of food sat rotting at the port

Fig 5.8: Venezuela - real *per capita* GDP since nationalisation of land

(Sources: World Bank; Statista)

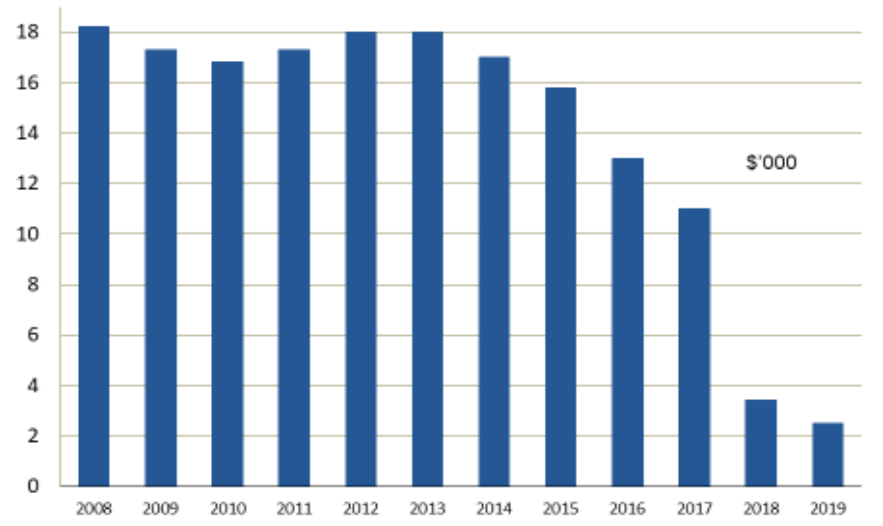
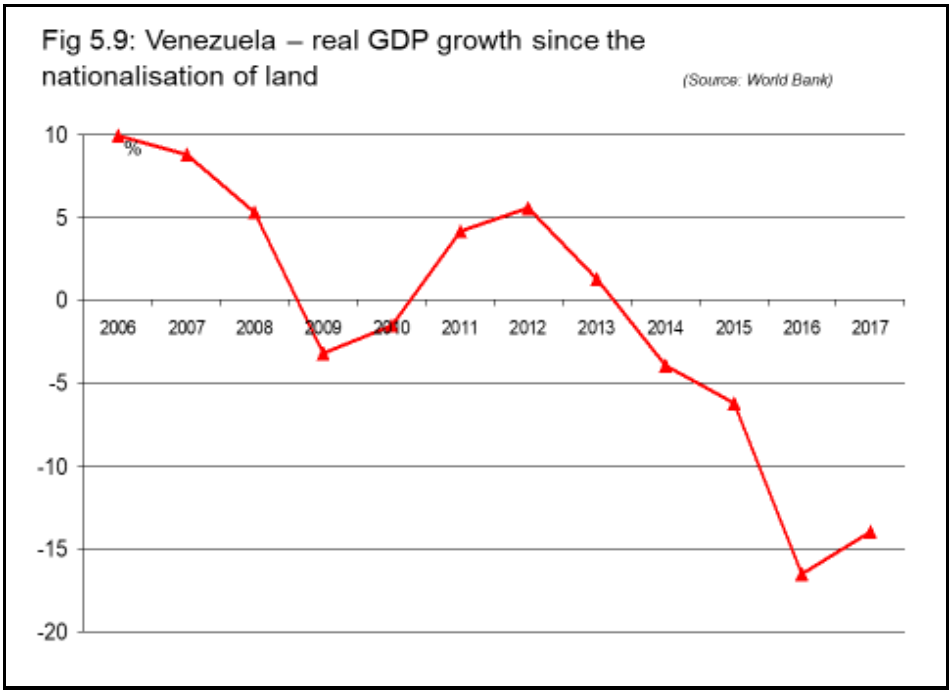


Table 5.9: Indicators of global competitiveness for which Venezuela is ranked last in the World (out of 137 countries)

Property rights	Inflation
Intellectual property protection	Intensity of local competition
Diversion of public funds	No. of procedures to start a business
Judicial independence	Time to start a business days
Favouritism in decisions of government officials	Agricultural policy costs
Burden of government regulation	Imports
Efficiency of legal framework in settling disputes	Hiring and firing practices
Efficiency of legal framework in challenging regulations	Country capacity to retain talent
Transparency of government policymaking	Country capacity to attract talent
Reliability of police services	Local supplier quantity
Ethical behaviour of firms	

Source: *World Economic Forum*



Venezuela – Historical context

The nationalization of land in Venezuela commenced after the promulgation of a law in 2001 whereby it was proclaimed that the land is the property of the nation and land invasions were de-criminalised.

In practice, however, the state held sway over the redistribution process, which manifested itself in a form of communism, with government officials being afforded vast discretionary powers to decide which farms would be expropriated and who would receive the re-zoned patches of erstwhile productive agricultural land.

Food security under threat

Case Studies by Juan Forero have confirmed that, ever since the expropriation of farmland by the government of former president Hugo Chavez, Venezuela has become more dependent on imports of food. Some highly productive farms were sub-divided and taken over by state officials, few of whom possessed any firm grounding or experience in agricultural production. This often resulted in a shift to crops that were not suited for a particular geographic area.

Common problems experienced by poor people that had been relocated to small patches of expropriated farms include the following:

- A lack of irrigation, poor roads and unreliable energy supply
- The absence of any meaningful technical support from state institutions
- Limited access to credit facilities
- Inadequate marketing channels
- Rapidly rising input costs

The Confederation of Associations of Agricultural Producers of Venezuela (Fedeagro) announced at the end of 2017 that the supply of food produced in the country had become very limited and very scarce, with a shortfall of 70% of the demand requirements. According to Fedeagro, Venezuela currently only produces enough food for its citizens for one out of every three days. Together with the violent socio-political unrest and detention of hundreds of dissidents of the communist policies of its president, Nicolas Maduro, food shortages have resulted in an unprecedented exodus of people from Venezuela, mostly to neighbouring Colombia.

The flight of Venezuelans began shortly after socialist Hugo Chávez became president in 1999, but has intensified under the current president Maduro. Lower oil production, land expropriation and fiscal mismanagement had led to the world's highest inflation rate, which was expected to reach one million per cent in 2018 (according to Alejandro Werner, director of the IMF Western Hemisphere department, writing in July 2018).

Gradual economic implosion

The economy of Venezuela has been steadily collapsing as a result of undisciplined monetary and fiscal policies and the expropriation of farmland, which have left it unable to maintain its socialist system of subsidies, price controls and over-regulation. The 2014 decline in the oil price exacerbated the imminent implosion of the Venezuelan economy, with electricity blackouts having become common place, sometimes lasting for weeks on end.

The backdrop to the humanitarian crisis in Venezuela is a lack of food security. In October 2016, *Caritas International*, a charity confederation operating in 200 countries, started to weigh children under 5 years old in the country, in order to measure "global acute malnutrition", the key mechanism that is used to determine the level of severity of hunger. It found that 8.9% of children faced acute malnutrition. A mere six months later, this figure had increased to 11.4%, well above the 10% threshold that humanitarian agencies use to declare a food crisis.

According to case studies conducted by *Caritas,* in 57% of households in at-risk areas, someone in the family has reduced essential food intake so others can eat. In June 2017, a total of 44% of people reported going one whole day without eating at all. Overall, 34% of families were resorting to at least one emergency coping strategy, which is a clear sign of acute food insecurity. This includes:

- Selling productive assets to buy food
- Reducing essential expenditures
- Eating from garbage bins
- Sending a child to beg for food
- Sending a family member to live elsewhere to relieve pressure on food stocks

As a direct result of the implosion of food production, Venezuela's infant mortality increased by 30% in 2017, according to the country's Health Ministry. The head of the ministry was fired by Mr Maduro two days after she released these statistics.

In addition to the nationalisation of land, the socialist government of Venezuela has also enacted laws that provide politicians and state officials wide-ranging discretionary powers over the agriculture and food supply chain. The state has effectively become the producer, processor and distributor of food, which has predictably led to an inefficient and dysfunctional agricultural sector bureaucracy.

Energy & water crisis

By August 2018, strike action at Venezuela's nationalised electricity company, Corpoelec, threatened to put further pressure on the decaying power system, which is in a state of near collapse, following years of under-investment. The strikes were in protest against so-called "hunger wages", which in some cases are less than R30 per month. Millions of people in the capital of Caracas have been without running water since the beginning of 2018.

In 2018, the United Nations High Commissioner for Human Rights confirmed that the socio-economic crisis in Venezuela had started long before sanctions were imposed on the regimes of Chávez and Maduro.

The tragic results of the policies of expropriation without compensation (EWC), also widely referred to as nationalisation continue to spread wider and the Venezuelan economic crisis is regarded as the worst that has occurred during peace time.

According to research published by *The New York Times*, the socio-economic despair being experienced in Venezuela is worse than that of the United States during the Great Depression or the 2008-2009 hyperinflation and economic contraction in Zimbabwe (Human Rights Watch: 2020).

Much of the scholarly research on Venezuela's disastrous experiments with policies of nationalisation have placed the emphasis on the oil industry, which has recently more or less ground to a halt. For the first time in almost a century, oil exploration in Venezuela has been abandoned.

Oil industry in tatters

Most of the wells that once tapped the world's largest crude oil reserves are now abandoned and few of the refineries that once processed oil for export remain in operation, many of them leaking crude that is adding an environmental disaster to the tragedy that Venezuela has become. A decade ago, Venezuela was the largest oil producer in Latin America, earning about $90-billion a year from oil exports - more than half of South Africa's GDP at the time (at the current exchange rate).

Oil production in 2020 is expected to amount to $2.3-billion, a decline of more than 97%. According to research by Pilar Navarro, a Caracas-based economist, Venezuelan migrants who

fled the country's economic devastation will remit more than the latter amount annually to support their families who have stayed behind.

Millions flee destitution

Malnutrition and acute food shortages have forced millions Venezuelans out of their country since 2016, according to the International Organisation for Migration (IOM).A recent study by the United Nations High Commissioner for Refugees has estimated the exodus of people between 2016 and the end of 2019 at more than 4.6 million men, women, and children. Migrants are fleeing a humanitarian and economic crisis that has exacerbated a decline in public safety and living standards.

According to the United Nations study, Venezuela's migration crisis is exerting enormous pressure on recipient countries, particularly in education, employment, and health. Despite 11 countries in the region having implemented more stringent entry requirements for Venezuelan migrants and refugees, this has not stemmed the tide. It has only affected the legal status of the migrants.

The nationalisation of the oil industry by Chávez is not, however, the main reason for Venezuela's decay into a *de facto* failed state. The decision to also give government control over agriculture and food production led to a similar set of circumstances as in several other countries that had nationalised productive land in the post-World War 2 era, most notably Zimbabwe.

Orchestrated attacks on freedom

The effective abolition of private property rights led to land invasions, often accompanied by violent attacks on the farming community, arson, and the destruction of homesteads and machinery and equipment.

According to the Cato Institute, one of the hallmarks of the former head of state, Hugo Chávez and also his successor, Nicolás Maduro, was a relentless attack on freedom. Yet, despite an exodus of Venezuelans to neighbouring countries and rampant hunger, the regime holds on to power, supported by the Venezuelan army. The army has joined in the general corruption of the regime and supports it to maintain officers' lavish lifestyles.

A vicious combination of nationalisation, fiscal mismanagement, an ignorance of the productive forces inherent in free market principles and a total lack of understanding of the unique combination of skills required for surplus agricultural production, ultimately conspired to send the majority of the country's citizens into abject poverty.

5.3 Summary and calculation of proxy for EWC-induced capital formation decline

Table 5.10: Calculation of the proxy for the decline in capital formation as % of GDP following policies of nationalisation as well as the reciprocal of the increase in the capital formation/GDP ratio after the adoption of market reforms

Country	Period	% decline	Term (years)	Average % per annum
Spain				
Decline	1982 - 1984	-10.4	2	
Reciprocal of increase	1984 - 1987	-11.6	2	-5.5
Portugal				
Decline	1981 - 1986	-32.2	4	
Reciprocal of increase	1986 - 1988	-24.4	2	-9.4
Vietnam				
Decline	1989 - 1991	-36.8	2	
Reciprocal of increase (1)	1991 - 1998	-238.3	7	
Reciprocal of increase (2)	1999 - 2007	-43.2	8	-18.7
Ethiopia				
Decline	1988 - 1991	-49.5	3	
Reciprocal of increase (1)	1992 - 1996	-65.3	4	
Reciprocal of increase (2)	1999 - 2004	-64.8	5	-15.0
Venezuela				
Decline (1)	1998 - 2003	-50.4	5	
Decline (2)	2013 - 2017	-63.2	4	
Reciprocal of increase	1990 - 1992	-132.1	2	-22.3
Romania				
Decline	1993 - 1999	-45.8	6	
Reciprocal of increase	1999 - 2001	-42.6	2	-11.0
Zimbabwe				
Decline (1)	1997 - 2000	-92	3	
Decline (2)	2010 - 2013	-48.5	3	
Reciprocal of increase	1992 - 1997	-25	5	-15.1
Mean country average				-13.9

6 Determining the impact of fixed capital formation on the gross domestic product (GDP) of South Africa via econometric modelling

6.1 Purpose, data and sample group

The purpose of the econometric analysis is to determine the impact of gross domestic fixed capital formation (GDCF) on the GDP of South Africa. Three different scenarios are used for the analysis, namely:

- Scenario 0: Similar trends assumed for all the variables as in the preceding 10 quarters
- Scenario 1: Assuming a decline in GDCF of 5% per annum (forecasts for 9 quarters ahead - GDCF1 in the model)
- Scenario 2: Assuming a decline in GDCF of 10% per annum (forecasts for 9 quarters ahead - GDCF2 in the model)

The data sources utilised for the econometric modelling of the impact of changes to gross domestic capital formation (GDCF) on gross domestic product (GDP) in South Africa are the South African Reserve Bank (SARB) database (obtained from *Quantec Data*). The sample data covers the period from the first quarter of 1995 up to the second quarter of 2020. The forecast period is from the third quarter of 2020 to the third quarter of 2022.

The dependent variable is the GDP at current prices and the independent variable is GDCF at current prices in R millions. The control variables are exports (X) at current prices, the consumer price index (CPI) and the prime interest rate in percentage terms. A model at constant prices (2010 = 100) is also used to produce forecasts in real terms.

All the data series were transformed into logarithmic form except for the prime rate. The structural break in the data due to the exceptional abnormality of economic output induced by the Covid-19 pandemic has been taken into account in the model forecasts.

It should be noted that the 5% assumption modelled for scenario 1 represents merely 36.1% of the average decline in capital formation/GDP ratios determined in section 5 above, whilst the 10% decline modelled for scenario 2 represents 72.2% of the average decline experienced by the case study countries. Both of these assumptions may therefore be regarded as conservative.

6.2 Method and results of regression functions

A simple regression was fitted initially, i.e. only one explanatory variable explaining the dependent variable (GDP). The purpose of this simple regression is to establish the individual impact of GDFC on GDP.

Thereafter a multivariate regression function is specified for the GDP. The relevant diagnostic testing was done on the residuals (autocorrelation and heteroscedasticity), and the necessary remedial measures were affected for all functions. The results for the single regression model for estimating nominal GDP are presented in table 6.1.

Table 6.1: Single regression model for GDP – nominal

Sample: 1995Q1 2020Q2
Included observations: 102
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 5.00)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.8058	0.234048	11.988	0.00
LOG(GDFC)	0.9029	0.020722	43.575	0.00
DUM	0.1945	0.024046	8.0917	0.00

R-squared	0.9854	Mean dependent var	13.093
Adjusted R-squared	0.9851	S.D. dependent var	0.7018
S.E. of regression	0.0854	Akaike info criterion	-2.0527
Sum squared residual	0.7228	Schwarz criterion	-1.9755
Log likelihood	107.69	Hannan-Quinn criter.	-2.0215
F-statistic	3357.7	Durbin-Watson stat	0.1841
Prob(F-statistic)	0.00	Wald F-statistic	2307.6
Prob(Wald F-statistic)	0.00		

Table 6.1 shows that GDFC explains GDP significantly (p-value = 0.0) and when GDFC changes by 1%, GDP will change by 0.90%, *ceteris paribus*. The R-squared indicates that 98.5% of the variation in GDP can be explained by GDFC.

The results for the single regression model for estimating real GDP are presented in table 6.2.

Table 6.2: Single regression model for GDP – real

Sample: 1995Q1 2020Q2
Included observations: 102
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 5.00)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.5235	0.2648	24.635	0.00
LOG(GDFC)	0.5867	0.0229	25.623	0.00
DUM	0.0427	0.0081	5.2316	0.00

R-squared	0.9626	Mean dependent var	13.324
Adjusted R-squared	0.9619	S.D. dependent var	0.2089
S.E. of regression	0.0407	Akaike info criterion	-3.5328
Sum squared residual	0.1645	Schwarz criterion	-3.4556
Log likelihood	183.17	Hannan-Quinn criter.	-3.5015
F-statistic	1277.5	Durbin-Watson stat	0.3938
Prob(F-statistic)	0.00	Wald F-statistic	384.46
Prob(Wald F-statistic)	0.00		

Table 6.2 shows that GDFC explains GDP significantly (p-value = 0.0) and when GDFC changes by 1%, GDP will change by 0.59%, *ceteris paribus*. The R-squared indicates that 96.2% of the variation in GDP can be explained by GDFC at constant prices.

The results for the multiple regression model for estimating nominal GDP are presented in table 6.3, which shows that gross fixed capital formation (GDCF), inflation (CPI), exports (X) and the prime rate are used to explain GDP.

All these variables explain the GDP significantly (p-value = 0.0; except CPI = 0.05). The adjusted R-squared (used in multiple regressions) indicates that 97.4% of the variation in GDP can be explained by these variables jointly (confirmed with the significant F-statistic).

Table 6.3: Multiple regression model for GDP – nominal

Sample: 1995Q1 2020Q2
Included observations: 102
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 5.00)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(GDFC)	0.3895	0.1379	2.8230	0.005
LOG(X)	0.8309	0.1129	7.3598	0.000
LOG(CPI)	-0.3571	0.1809	-1.9742	0.051
PRIME	0.0215	0.0048	4.4318	0.000
DUM	0.2561	0.0408	6.2763	0.000

R-squared	0.9752	Mean dependent var	13.093
Adjusted R-squared	0.9742	S.D. dependent var	0.7018
S.E. of regression	0.1126	Akaike info criterion	-1.4821
Sum squared residual	1.2299	Schwarz criterion	-1.3534
Log likelihood	80.587	Hannan-Quinn criter.	-1.4299

For one percentage increase in GDFC, GDP will increase with 0.39%, *ceteris paribus*. When exports increase by 1%, GDP will increase by 0.83% *ceteris paribus.* The CPI has a negative effect on GDP, *ceteris paribus.*

The results for the multiple regression model for estimating real GDP are presented in table 6.4, which shows that gross fixed capital formation (GDCF), inflation (CPI), exports (X) and the prime rate are used to explain GDP. All these variables explain the GDP significantly (p-value = 0.0). The adjusted R-squared (used in multiple regressions) indicates that 99.5% of the variation in GDP can be explained by these variables jointly (confirmed with the significant F-statistic).

For one percentage increase in GDFC, GDP will change with 0.25%, *ceteris paribus*. Similarly, when CPI increases with 1%, GDP will increase with 0.19%, *ceteris paribus* and when exports increase by 1%, GDP will increase by 0.167% *ceteris paribus.* The prime rate has a negative effect and hence when the prime rate goes up by 1% GDP will decline with -0.004%, *ceteris paribus.*

Table 6.4: Multiple regression model for GDP - real

Sample: 1995Q1 2020Q2
Included observations: 102

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.6773	0.2252	34.077	0.00
LOG(GDFC)	0.2492	0.0149	16.650	0.00
LOG(X)	0.1673	0.0242	6.8927	0.00
LOG(CPI)	0.1930	0.0117	16.426	0.00
PRIME	-0.0044	0.0006	-6.5707	0.00
DUM	-0.0755	0.0177	-4.2488	0.00

R-squared	0.9949	Mean dependent var	13.324
Adjusted R-squared	0.9946	S.D. dependent var	0.2089
S.E. of regression	0.0152	Akaike info criterion	-5.4698
Sum squared residual	0.0223	Schwarz criterion	-5.3154
Log likelihood	284.96	Hannan-Quinn criter.	-5.4073
F-statistic	3768.4	Durbin-Watson stat	1.8537
Prob(F-statistic)	0.00		

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6.3 Impact on GDP of the forecasting model results

Scenarios 1 and 2 referred to under sub-section 6.1 are the two main assumptions used to generate the forecasts for GDP. Both of these scenarios are premised on a decline in GDFC – a realistic assumption in the event of a significant decline in investor confidence in the economy.

The lagged values (9 quarters) are assumed for the control variables, thus assuming the same trends as the past two and a half years.

Scenario 0 assumes that private property rights will remain under statutory protection and that current trends (the past 2 and a half years) will persist in GDCF, as well as the rest of the variables in the model.

(i) *Impact on nominal GDP*

The impact of GDCF on nominal GDP under the three different scenarios is depicted by table 6.5 and the forecast nominal GDP trends for the different scenarios are illustrated by figure 6.1 (quarterly) and figure 6.2 (annualised).

The effect of a 5% decline in GDCF (scenario 1) is a consistently declining trend for the nominal GDP growth rate, namely from an average of 9.4% per annum between Q4, 2019 and Q3, 2021 to only 4% during the first three quarters of 2022.

For scenario 2 (based on a 10% decline in GDCF, the average decline is even more pronounced, namely from an annualised 5.1% to only 1.7% for these two periods.
The data in table 6.5 also reflects a substantial decline in the cumulative loss of economic output that can be expected in the case of EWC being pursued. Under scenario 1, this

amounts to R417 billion over the forecasting period and under scenario 2, the lost GDP amounts to R616 billion.

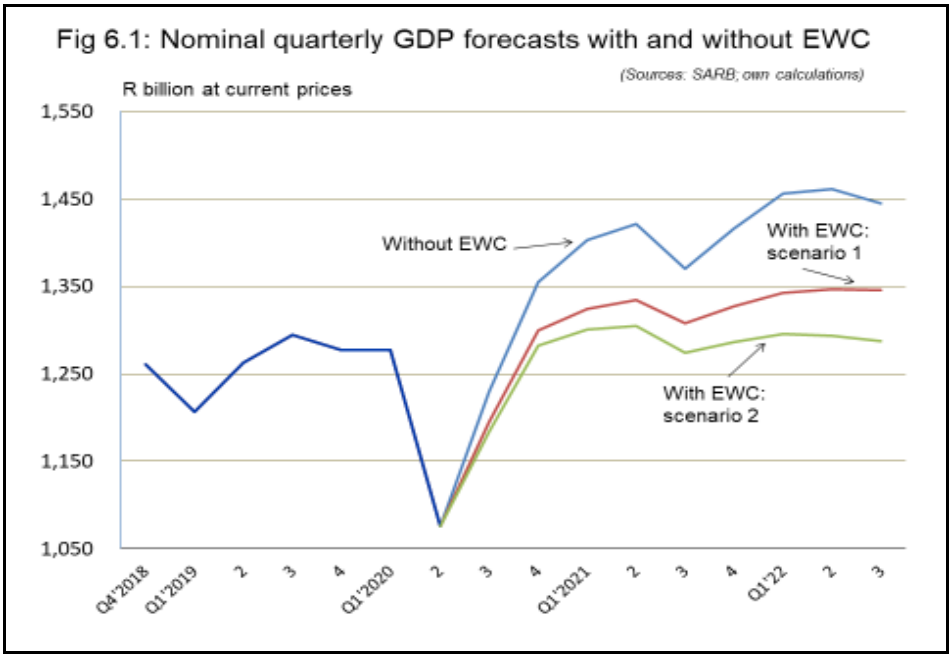
When the nominal GDP growth rates under scenarios 1 and 2 are deflated by the current level of the consumer price index (CPI), it is also clear that South Africa will enter a recession immediately after the technical recovery that will necessarily follow the sharp Covid-induced downturn of the second and third quarters of 2020 (this is confirmed by the real GDP forecasts discussed below).

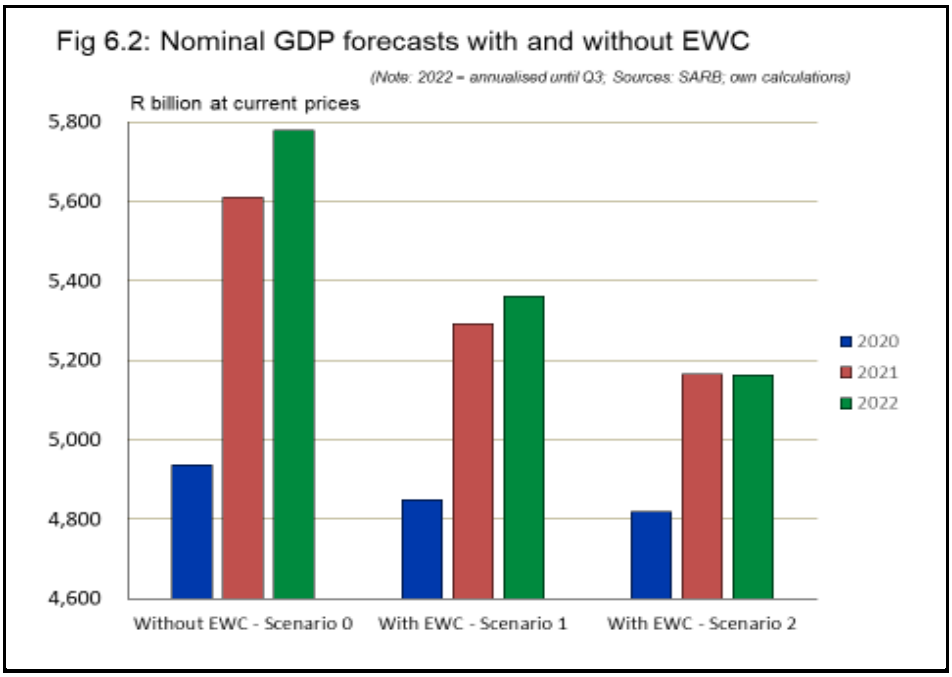
Table 6.5: Historical and forecast nominal GDP under 3 scenarios

Quarter	R Billion at current prices			Year-on-year % change		
	Scenario 0	Scenario 1	Scenario 2	Scenario 0	Scenario 1	Scenario 2
Historical						
Q4'2018	1,260	1,260	1,260			
Q1'2019	1,207	1,207	1,207			
2	1,263	1,263	1,263			
3	1,295	1,295	1,295			
4	1,313	1,313	1,313	4.2	4.2	4.2
Q1'2020	1,277	1,277	1,277	5.8	5.8	5.8
2	1,076	1,076	1,076	-14.8	-14.8	-14.8
Forecast						
3	1,230	1,195	1,184	-5.0	-7.7	-8.5
4	1,355	1,300	1,283	3.2	-1.0	-2.3
Q1'2021	1,403	1,324	1,301	9.9	3.7	1.9
2	1,422	1,334	1,305	32.1	24.0	21.3
3	1,370	1,308	1,274	11.4	9.4	7.6
4	1,416	1,327	1,286	4.5	2.1	0.3
Q1'22	1,457	1,342	1,295	3.8	1.4	-0.4
2	1,461	1,346	1,293	2.8	0.9	-0.9
3	1,445	1,346	1,288	5.4	2.9	1.1
Cumulative loss of GDP		417	616			

Notes:

1. *Scenario 0 represents the absence of expropriation without compensation (EWC)*
2. *Scenario 1 represents a 5% decline in capital formation due to a policy of EWC*
3. *Scenario 2 represents a 10% decline in capital formation due to a policy of EWC*





(ii) *Impact on real GDP*

The impact of GDCF on real GDP under the three different scenarios is depicted by figure 6.2 and table 6.6.

The data sets emanating from the econometric modelling exercise indicate that a 5% decline in GDCF will cause the real GDP growth rate to remain in negative territory from the 3rd quarter of 2021 onwards, averaging minus 0.64%. A 10% decline in GDCF will be worse, causing an average contraction in GDP of 2.17%.

It is clear from the data in table 6.6 and figure 6.3 that a full-blown recession will be exacerbated in the cases of both scenarios 1 and 2 (a 5% and 10% decline in capital formation, respectively, induced by a policy of EWC).

Table 6.6: Historical and forecast real GDP under 3 scenarios

Quarter	R Billion at constant 2010 prices			Year-on-year % change		
	Scenario 0	Scenario 1	Scenario 2	Scenario 0	Scenario 1	Scenario 2
Historical						
Q4'2018	810	810	810			
Q1'2019	762	762	762			
2	788	788	788			
3	793	793	793			
4	806	806	806	-0.5	-0.5	-0.5
Q1'2020	762	762	762	0.1	0.1	0.1
2	654	654	654	-17.1	-17.1	-17.1
Forecast						
3	804	733	730	1.3	-7.6	-8.0
4	811	733	728	0.6	-9.0	-9.7
Q1'2021	816	734	725	7.1	-3.7	-4.8
2	817	733	722	25.0	12.2	10.5
3	805	729	715	0.2	-0.6	-2.1
4	814	729	712	0.4	-0.6	-2.1
Q1'22	823	729	709	0.8	-0.7	-2.2
2	821	727	705	0.4	-0.8	-2.4
3	811	725	701	0.7	-0.5	-2.0

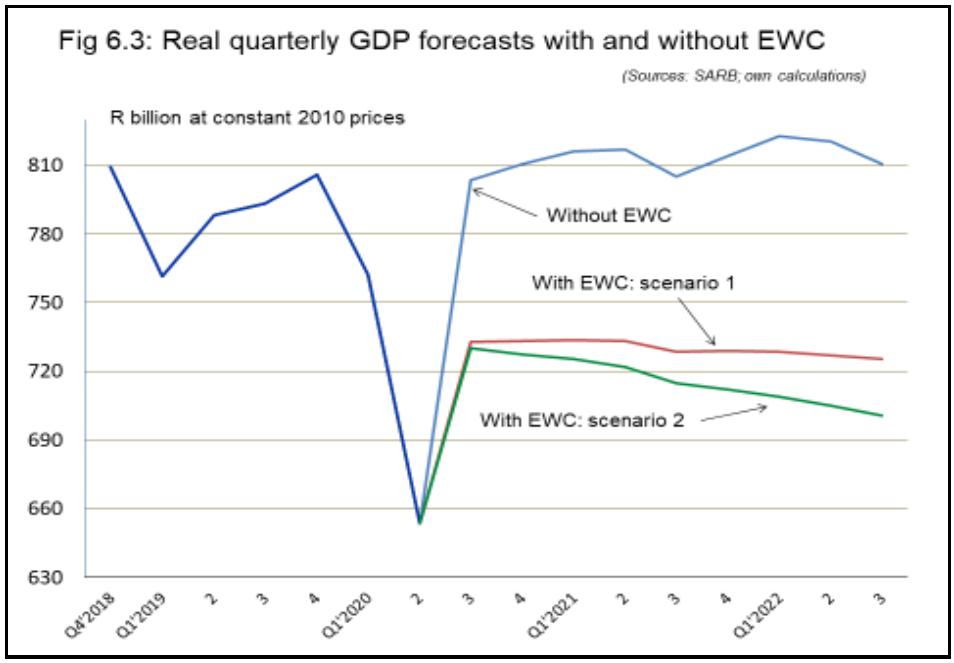
Notes:

1. *Scenario 0 represents the absence of expropriation without compensation (EWC)*
2. *Scenario 1 represents a 5% decline in capital formation due to a policy of EWC*
3. *Scenario 2 represents a 10% decline in capital formation due to a policy of EWC*

Scenario 2 represents an exceptionally bleak picture of declining real GDP in the event of the disincentives for capital formation inherent in a situation where private property rights are no longer guaranteed.

Three additional observations are, firstly, the extraordinary high year-on-year growth rate that is forecast for all three scenarios in the second quarter of 2021, which is due to the low base from which it is calculated, namely the second quarter of 2020, when the lockdown regulations induced by Covid-19 led to a dramatic and unparalleled decline in South Africa's GDP (as was experienced all over the globe).

Secondly, the low real growth rate being forecast for scenario 0 (without EWC) from the 3rd quarter of 2021 onwards is the result of the lethargic growth trajectory over the past three years, mainly due to low levels of business confidence, high interest rates, widespread corruption in the public sector and the occurrence of state capture. Nevertheless, the model does not foresee a recession in the absence of a policy of EWC.



A third issue relates to the marginally higher growth that has been forecast for 2022 by National Treasury (as published in the Medium Term Budget Policy Statement – MTBPS). It is important to note that higher growth under scenario 0 will not materially change the ratios between the growth rates for the three different scenarios. In fact, higher growth under scenario 0 will lead to higher differentials for both scenarios 1 and 2.

6.4 Impact on tax revenues and the fiscal debt

The results of the econometric modelling exercise now serve as the basis for calculating the outcomes of the forecasts under scenarios 1 and 2 for two key indicators of fiscal stability, namely total taxation revenues and the public debt/GDP ratio. To this end, nominal GDP trends will be utilised.

The steps followed to analyse the fiscal effects of EWC are:

- Firstly, it was necessary to express key fiscal parameters in calendar years and not fiscal years. The results of these calculations are depicted by table 6.7 and the sources were the *2020 Budget Review* and the *2020 Medium Term Budget Policy Statement (MTBPS)*.

- The next step was to determine the total taxation revenue/GDP ratios for each of the 2019 to 2022 calendar years. Due to the econometric model's forecast running to the third quarter of 2022, the annualised data up to this point was utilised for 2022. The results of this exercise are presented in table 6.8

- These ratios were then applied to the annualised GDP data of the three different scenarios that were forecast. Due to the proven inflexibility of government expenditure trends, especially as a result of the large allocations to labour remuneration and welfare payments, as well as the significant and increasing allocation to the interest paid on public debt, the same annualised expenditure figures as in table 6.7 were utilised (MTBPS data).

Table 6.7: Calendar year GDP and key fiscal data

Year	GDP	Revenue	Expenditure	Deficit	Gross debt	Debt/GDP %
2019	5,078	1,457	1,764	-306	3,143	61.9
2020	4,885	1,337	1,991	-654	3,796	77.7
2021	5,240	1,263	2,005	-742	4,408	84.1
2022	5,553	1,512	2,059	-547	4,941	89.0

Note:

1. Data on tax revenue, government expenditure, the budget deficit, gross public debt, and the ratio of public debt to GDP (as a percentage) have been determined for calendar years. The calculations have been based on data obtained from the 2020 Medium Term Budget Policy Statement

Table 6.8: Forecasts for GDP and key fiscal variables

Scenario 0 (without EWC)

Year	GDP	Revenue	Expenditure	Deficit	Gross debt	Debt/GDP %
2019	5,078	1,457	1,764	-306	3,143	61.9
2020	4,937	1,351	1,991	-640	3,783	76.6
2021	5,611	1,352	2,005	-653	4,436	79.1
2022	5,779	1,573	2,059	-486	4,922	85.2

Scenario 1 (with EWC)

Year	GDP	Revenue	Expenditure	Deficit	Gross debt	Debt/GDP %
2019	5,078	1,457	1,764	-306	3,143	61.9
2020	4,848	1,327	1,991	-664	3,807	78.5
2021	5,293	1,276	2,005	-729	4,536	85.7
2022	5,361	1,459	2,059	-600	5,136	95.8

Scenario 2 (with EWC)

Year	GDP	Revenue	Expenditure	Deficit	Gross debt	Debt/GDP %
2019	5,078	1,457	1,764	-306	3,143	61.9
2020	4,820	1,319	1,991	-672	3,815	79.1
2021	5,166	1,245	2,005	-760	4,575	88.6
2022	5,163	1,405	2,059	-654	5,229	101.3

Notes:

1. Based on data obtained from the 2020 Medium Term Budget Policy Statement (MTBPS)

2. Revenue calculation based on the same revenue/GDP ratio as the MTBPS

3. Expenditure figures based on the same values as in table 6.8

4. Data sets for 2022 are annualised up to the end of the third quarter of 2022

- Due to the econometric model anticipating a stronger year-on-year recovery of GDP in quarters two and three of 2021 than implicit in the MTBPS data, the forecast for tax revenues contained in table 6.8 (scenario 0) is higher than the figures in table

6.7. As an inference, the gross public debt as percentage of GDP is also lower in table 6.8 (scenario 0).

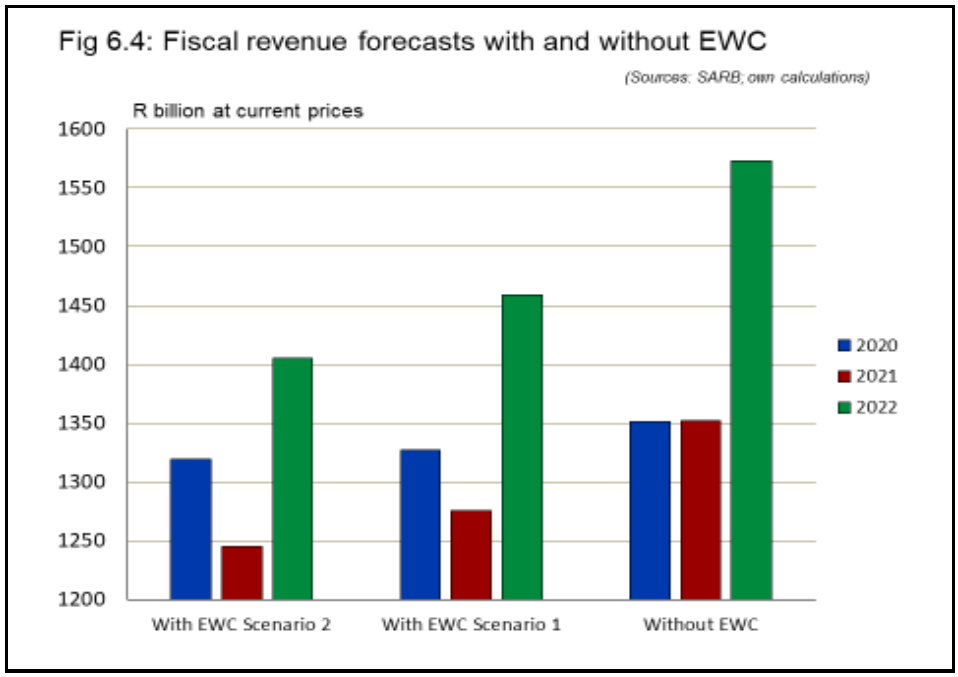
- It should be noted that the same ratios between total tax revenues and GDP contained in the MTBPS have been utilised for the calculations in table 6.8. It is clear from the revenue expectations in the MTBPS that National Treasury expects a lagged negative effect on fiscal revenues in 2021, due mainly to the loss of employment and lower company profits induced by Covid-19.

- The deficits obtained by deducting revenue from expenditure were then added to the gross public debt of the previous calendar year

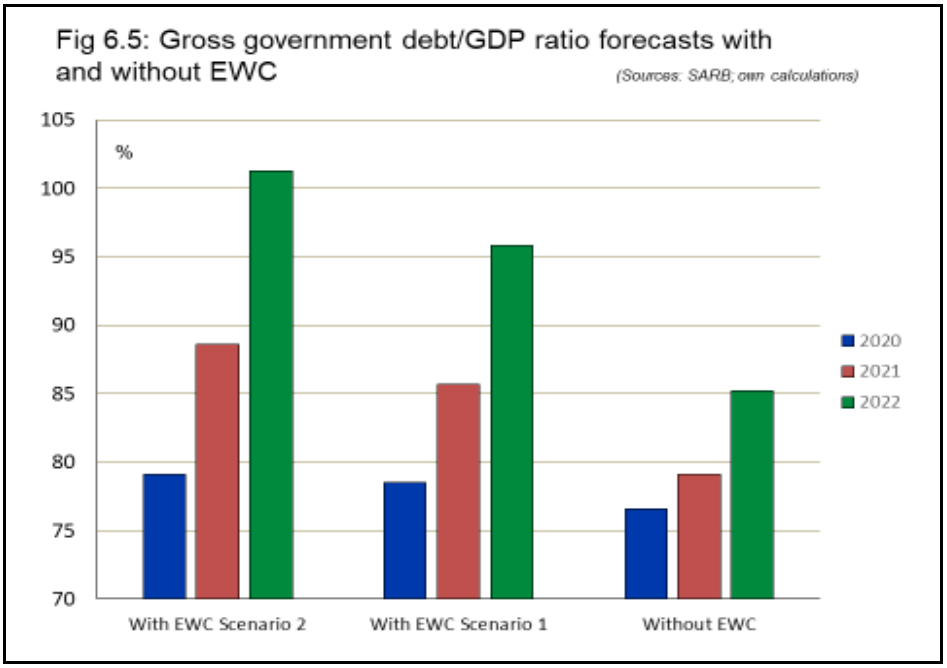
- The final step was the calculation of the public debt/GDP ratio, expressed as a percentage.

It is clear from the forecasts contained in table 6.8 and figure 6.3 & 6.4 that any meaningful decline in South Africa's ratio of capital formation to GDP will exert a significant negative impact on the country's public finances.

The increase in the public debt/GDP ratio to more than 100% of GDP under scenario 2 will undoubtedly lead to an escalation of debt service costs, whilst also making it increasingly difficult for government to maintain its operational expenditures and provide basic services to the citizens of the country.



The fiscal deterioration under either of scenarios 1 or 2 will in all probability also lead to further downgrades of South Africa's sovereign bonds, which could raise capital market interest rates and, as an inference, raise public debt servicing costs even further.



A worst case scenario would result in South Africa being forced to apply for financial assistance from the International Monetary Fund. Such a situation would translate into less leeway with the process of fiscal consolidation that National Treasury has embarked upon and would be a huge embarrassment to the most influential and diversified economy on the African continent.

7 Conclusion

This study provides empirical evidence relating to seven country case studies that confirms the significant negative effect on economic output (as measured by the gross domestic product – GDP) when private property rights are not guaranteed (including land expropriation without compensation). In each of the seven case studies, the negative effect on the economy operates via lower levels of private sector capital formation, which is a prerequisite for the future expansion of economic activity.

Secondary effects of the lower level of new investment induced by EWC include lower taxation revenues, which erode a governments' ability to provide basic services and, ultimately, higher unemployment. In certain cases, especially Venezuela and Zimbabwe, mass outbound migration also occurred, due to food shortages in the wake of declining agricultural production.

The econometric modelling exercise of the impact that a policy of EWC will exert on economic capital formation in South Africa (which is crucial for increasing the stock of productive assets) confirms the inevitability of a sharp decline in the economic growth rate and a further erosion of taxation revenue growth. The resultant increase in South Africa's public debt will ultimately require further financial assistance from the International Monetary Fund. This will mean that government will not be able to implement its Recovery and Reconstruction Plan (RRP) on its own terms, but rather on terms that are stipulated in the financial aid agreement.

Economic capital, which is an indispensable prerequisite for economic development, job creation and growth, needs to be nurtured and incentivised. It is therefore regarded as imperative for South Africa's policy makers to address the issue of land reform in such a manner that investor confidence, economic growth, job creation and the quest for fiscal stability are not compromised.

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