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# Observing the Political and Economic State of South Africa Through the Lens of the Principal-Agent Problem

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**Observing the Political and Economic State of South Africa**

**Through the Lens of the Principal-Agent Problem**

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**Introduction**

Africa is arguably the most underdeveloped continent in the world, and a large part of

that is due to government instability and a history of external and internal factors that hindered

its economic growth. Countries with vast amounts of natural resources have been ravaged by

external forces and internal turmoil, and the economic potential for many of these countries has

been hampered to such a degree that, according to The World Bank, 90% of the world's

population categorized as "extremely poor" (living on less than $1.90 per day) will live in

sub-Saharan Africa[1]. No country embodies this discrepancy between potential and reality more

than South Africa, a nation fresh off one of the most oppressive social institutions in modern

history in the shape of Apartheid. Rich with coal and natural gas, boasting the world's largest

reserves of gold and platinum, and among the world leaders in diamond and other precious

mineral production, South Africa has natural resources that rival and even exceed many

first-world countries[2]. However, the brutal institution of Apartheid that ruled the nation from the

late 1940s through 1994 created an unnatural but very real divide in the economic development

of the country.

While the whites in positions of power and opportunity saw huge surges in influence and

prosperity, the black working class suffered immensely. Through the various policies and

restrictions set in place, black South Africans had little access to the wealth created from the

industrialization and growth that occurred during this time while providing extremely cheap labor

to the whites who did. This led to South Africa having some of the most extreme levels of

income disparity in the world, and huge rates of poverty and undereducation in the population.

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[1] Wadhwa, Divyanshi. "The Number of Extremely Poor People Continues to Rise in Sub-Saharan Africa." *The World Bank*, 3 Oct. 2018, blogs.worldbank.org/opendata/number-extremely-poor-people-continues-rise-sub-saharan-africa.
[2] AZoMining. "South Africa: Mining, Minerals and Fuel Resources." *AZoMining.com*, AZoMining.com, 18 July 2012, www.azomining.com/Article.aspx?ArticleID=50.

In 1994, when Nelson Mandela was elected and the Apartheid regime was dismantled in favor of a Representative Constitutional Republic, everything was supposed to change. While there have been strides in terms of rights for many black South Africans and overall economic output has increased, there still exist enormous levels of poverty, unemployment, and one of the worst education systems among the industrialized world. Why is this the case, and why has the black experience developed so poorly? Blacks make up more than 80% of the citizens in the country (around 76% of voting-eligible adults)[3], and have immense voting power as a result. How, then, has there been such little progress in repairing the broken economic system that left so many people in an utterly powerless and poverty-stricken existence?

South Africa is in a precarious situation. Coming out of Apartheid and following Nelson Mandela's lead, there was a distinct sense of hope and potential for the black population that had been held under the crushing thumb of the White governmentfor so long. The African National Congress (ANC), the party of Mandela, seized control of the government through the voting power of a huge black majority in the country that adored the man who had helped lead them out from under the oppressive regime. Finally given the chance to speak with their vote and shape the country in a way that would give them the fair chance they had always desired and deserved, black voters began to voice their hopes for the future of the nation. Yet here we are, more than twenty years later, and a very different situation than what was imagined has emerged. Poverty and employment rates - almost exclusively among the black communities - are still disturbingly high, and there is little to no possibility for upward mobility for those in the lower class.

Corruption has played an enormous role in shaping the country. Every year, more stories break about politicians and high-ranking South African officials being caught in corruption

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[3] Stats SA Statistics South Africa. (2016, June 30). Retrieved from http://cs2016.statssa.gov.za/

scandals and dirty money. Just last year in 2018, Jacob Zuma was forced to step down from the presidency he had held for nearly 10 years due to corrupt dealings[4]. Surprisingly, this corruption has played arguably as important a part in keeping South Africa together as much as it has in maintaining the drastic inequality that pervades the population and economic system. Time and time again, ANC officials have been caught receiving "dirty" money (what we will say is the means of corruption) from white, upper class figures and companies in exchange for political favors or influence. Roger Southall writes that, "particularly, the party-state became a machine for material accumulation by the Zuma-aligned elements of the party elite" (Southall, 2019). In many ways, government agencies have become pay-to-play schemes that seek to serve those in authority and those who can afford to influence them. The ways in which this damages the lower class are obvious, as a small section of society gets to exert a massive and disproportionate amount of influence over the rest of the population through these transactions, and the unemployment and poverty rates have remained alarmingly high . However, the ways in which this is - at least in the short term - possibly beneficial for the country are harder to see at first glance.

The trouble lies in the demands of the black voting population, for land expropriation from white South Africans (specifically farmers) and huge amounts of reparations for Apartheid. While one can debate the morality of these demands, and valid arguments can be presented on both sides, the blunt economic reality is that compensation on this scale and of this nature would ruin South Africa's economy and bring about a result of absolute disaster. Mob rule is a dangerous game, and one only needs to look at the neighboring nation of Zimbabwe to see a potential alternate future for South Africa[5]. In 2000, the Zimbabwean government seized land

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[4] Onishi, Norimitsu. "Jacob Zuma Resigns as South Africa's President." The New York Times. February 14, 2018. https://www.nytimes.com/2018/02/14/world/africa/jacob-zuma-resigns-south-africa.html.
[5] Walther, T. C. (2017, December 30). Land reform: Will Zimbabwe's economic downfall be repeated in South Africa? | DW | 30.12.2017. Retrieved from https://www.dw.com/en/land-reform-will-zimbabwes-economic-downfall-be-repeated-in-south-africa/a-41972001

from white farmers as a way of compensating black citizens who had been oppressed and dramatically harmed during the country's history. This was done without taking two basic facts into consideration: 1 - those taking over the farm land had no experience, and food production immediately dropped to dangerously low levels as a result, and 2 - any white person with capital in the country would take this as a warning shot and leave the country along with most of their assets. Both of these ended up happening; and as a result Zimbabwe has experienced debilitating inflation and high rates of poverty and food scarcity. While South Africa differs from Zimbabwe in various ways, the economic realities of these two consequences remain more or less the same. This is where the corruption comes into play. As dirty money flows from the white upper class to the ANC, clearly the scale and scope of reparations is going to decrease (since they aren't in the best interests of the the whites). This has a short term negative effect on the black low class, as they are stuck in the disadvantaged state that they were in coming out of Apartheid; but it is a long-term positive effect by preventing the collapse of the economic structures that hold the country together.

Clearly, this system only holds together as long as the whites have influence over the ANC and the ANC maintains its control over the government. This requires black majority voters to continue to vote in people who have done either nothing to help or have actively moved to hurt their interests. For the lowest class, there is limited access to news or information, so the shine of Mandela continues to provide a reason to vote ANC. However, as globalization has continued and the black class has gained more information and have become more aware of their situation, a new white strategy has arisen - the creation of a middle class. The middle class is made up of blacks, small percentages of the less-well off whites, and peoples from all other races such as asians or mixed race (in South Africa, people of non-white, non-black heritage - including mixed race - are referred to as coloureds, a much different understanding of the word

than the politically correct language in the United States that sees it as a slur towards blacks).

This black and coloured middle class provides a goal, unattainable as it may be, for lower class

blacks and uses hope of upward mobility as a distraction from the immediate issues presented

by the abandonment of the ANC from their base. The middle class has been formed in part

through the Black Economic Empowerment (BEE) programs that give various incentives to

businesses that encourage them to hire black South Africans. Giving this incentive allows select

individuals from the lower class to boost their economic and social standing. While clearly giving

a person the opportunity for upward mobility is a good thing in a vacuum, this process repeated

over time has led to a separation of interests between the middle and low classes (as basic

survival is no longer the first priority), and it takes away much of the reason for the coloured

middle class to vote out a party (the ANC) that provided them the opportunity to move up. To

keep the black class appeased and voting in their favor, the ANC provides limited educational

opportunities (some of the worst school systems in the world), public internet, public water, and

various public goods that are very minor compared to the demands of the bloc. It is a constant

application of cheap bandages to a problem that is growing for the ANC year by year, and

something will need to be done in the future to prevent the further opening of the wound.

However, for the moment, since these combined factors are sufficient to keep voters voting

ANC, the whites maintain their control and the status quo remains more or less stagnant.

**Modeling Corruption**

Corruption is a difficult concept to model. There are differing definitions, and measuring

the scope of its impact can be nearly impossible. Many economists have attempted over the

years, from Hellman's 2000 work on the relationship between corruption and economic growth

to Giles' 1999 paper on the the "Hidden Economy". Each model has offered a different

perspective and insight into the economics of corruption, and each effort has had its weaknesses as well.

Economist Nico Groenendijk of the University of Twente, The Netherlands, published a paper in 1997 presenting a principal-agent model of corruption (Groendendijk, 1997). H points to the obvious fact that government and the voting population are a clear example of a principal-agent relationship. The agent (the government) makes the ultimate decisions that affect the principal (the voting population), while the voting population are truly the ones with the power to change incentives (vote whichever way they desire). The inner workings of the government and bureaucracy are unknown to the voters, so the power of knowledge is tilted significantly towards the elected officials. In this model, there is an additional principal, the corrupting actor, who extends influence over the agent and receives payoffs as a result of their actions as well. Each of the three actors strives to maximize their individual payoffs/utility through decision-making and changing incentive structures (as the principals are the ones responsible for creating and adapting incentives to help influence the agent's actions) that will affect how the others play the game.

This paper will attempt to use this model as a lens through which to view the experience of post-Apartheid South Africa. However, Groenendijk's model only accounts for two principals - the corrupting one and the second one. In this case of South Africa, there are, in fact, three different principals - each of the three racial and socio-economic classes that total the electorate. As a representative democracy, South Africa is in a position where the voters would seem to have immense influence over the direction of their country, but a glance at the real-world results shows a much more grim picture for much of the population. For the white wealthy class, this is no problem at all, and as a result their utility functions will look significantly different from those for the poor black voters. This model will consider each of these

perspectives and try to come to a solid understanding of how and why corruption continues to plague this divided yet promising nation.

**The Model**

There are 4 main actors in this model: the ANC (A), the white upper class (W), the mixed-race middle class (M), and the black lower class (B). These can be simplified into two populations: the government (made up of A) and the voting block (made up of W, M, and B). Between these groups, there are 4 relationships. There are three principal-agent relationships, one each between W and A, M and A, and B and A. In addition, there is a corrupting relationship between A and W.

**The Principal-Agent Relationship**

The key to a principal-agent relationship is that there is an imbalance of information. The agent acts on behalf of the principal to influence the final outcome, but doesn't always act in accordance with what the principal desires. At the same time, the agent doesn't have full control over the final outcome, which is where the information imbalance comes in. Of course, if the final result (which affects both the agent and the principal) was always a direct reflection of the agent's actions, then the principal would know with full certainty which way the agent acted. Let us take an example where there are two potential outcomes, such as a bill either passing or failing to pass a vote to become law in the South African National Council of Provinces (NCOP). We will call pass outcome X and fail outcome Y. Let a delegate from a single province be the agent for his constituents. Even if that delegate pushes hard for the vote to either pass or fail (actions *x* and *y*, respectively), and votes accordingly, there is still variance in the outcome that is outside of his control, such as the votes of and arguments made by other delegates. This leads to four potential scenarios, in this simplified version of the problem where there are only

two potential actions and two potential outcomes (which are not necessarily the same, as in this case).

1. The agent's action is *x* and the outcome is X

2. The agent's action is *x* but the outcome is Y

3. The agent's action is *y* but the outcome is X

4. The agent's action is *y* and the outcome is Y

The principal will prefer one of these outcomes, but the agent doesn't have to follow this preference, because they always have the deniability of saying the outcome is partially out of their control. "I acted the way you wanted but the outcome was different despite my efforts." The agent will always try to make the principal believe that they went along with their interests, regardless of whether they did or not and regardless of the final outcome. In order for the principal to keep the agent accountable, they have a few options. They can either lessen the information gap through increased inspection/surveillance of the agent, or they can change the incentive structure so that the agent's preferences are more likely to become aligned with theirs. These actions have what Groenendijk (1997) calls inspection and prevention costs associated with them. Conversely, the agent strives to maintain the information imbalance to maintain sovereignty, or aims to distract the principals from changing their incentives. The costs associated with these are concealment costs and diversion costs. Finally, for both principals and agents, there is the failure cost that encompasses the difference in lost utility between that actor's preferred outcome and the actual outcome. Each of the actors seeks to maximize their own utility function (benefits-costs) by minimizing costs, since the costs are more in control of the actor than the benefits are. These costs and benefits for each actor are laid out plainly in Appendix i, and will be explained in more detail in the following sections.

**Assumptions and Potential Dangers of this Model**

As with any model, there are a number of assumptions and generalizations that must be made, at the potential peril of the model's validity. Some are made within Groenendijk's work, and an additional number are required to apply it to the South African economic experience. First, as with any principal-agent framework, there is the assumption that each of the actors is rational in their decision making, choosing actions that reflect their preferences with the intent of gaining the highest possible utility. While this is a potentially dangerous assumption to make, since it isn't always the case that each actor even is fully aware of their expected utility from any course of action, it is necessary for the sake of assembling the model to imagine that each participant is looking out for their own interests and uses utility-maximizing strategies to do so. Another assumption is that the interests of the agent and of the principal (in this case, three principals) aren't fully aligned. Of course, if the preferences were identical, then there would be no problem and no reason for the principal to monitor the agent. This assumption absolutely holds true in the case of South Africa, as each of the four actors has different goals - as laid out above and below - else there would be no need for corruption, political protest, or anything of the sort.

One vital assumption is that the principals are incapable of monitoring the actions of the agent without bearing some sort of cost. This can be applied to South Africa with some legitimacy, since there is at the very least the time and energy cost of following the news or observing voting records of those officials in the government. Even if there may not always be a monetary cost, as many people have access to public internet hotspots or other methods of finding this information, the costs are still quite real. The fact that monitoring is necessary is due to another assumption - the inability of the agent to have full and total control over the outcome of the game. In any country, South Africa included, there are factors at play that affect outcomes - especially with regards to the economy - other than the actions of those in government. These

can include natural disasters, international interference or sanctions, actions from unions or other influential groups, and other causes. That is to say, even if policies were enacted exactly as the agent (in this case, the ANC) intended, the final outcome and impact on the country would be dependent on much more than that one action that is within the agent's control.

Because of the nature of the principal-agent relationship, the principal is the agent's superior, and because of this power dynamic the principal has the ability to define the payoffs for the agent. This pair of assumptions is theoretically the case in South Africa, where the Preamble of the Constitution states that one of the key values of the nation is to "lay the foundations for a democratic and open society in which government is based on the will of the people and every citizen is equally protected by law"[6]. Since the government is supposedly based on the will of the people, then theoretically the voters are in a position of authority over those in official government roles. How well this holds up in the real world, where there is constant abuse of legal power and voters often seem to be viewed as the inferior body, is at the very least questionable. However, since the voters still have the ability to ultimately decide whether to keep a party in power or not, for the sake of this model is is reasonable to take the assumed hierarchy and related payoff-creating structure as valid.

In Groenendijk's model, and with the introduction of corruption into the principal-agent problem, a new assumption arises: the principals will object to corruption on moral groups regardless of whether the end result benefits them. This is a valid assumption to make, because the fact that laws have been put in place to prevent corruption, regardless of how well they are enforced, shows that there are moral attitudes about corruption that paint it in a negative light.

Possibly the more potentially dangerous assumption to make is one that is also necessary for Groenendijk's model to be applied to the case of South Africa. Each of the four

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[6] Constitution of the Republic of South Africa, 1996

actors presented in this paper represents a substantially large section of the population, yet for the model are each viewed as individual actors with internally unified goals and circumstances. Of course, this doesn't hold up for every single person, as not every elected official is corrupt and not every poor black South African is calling for full reparations. With regards to the ANC, this assumption is not quite as weak because South Africa's government utilizes a proportional representation system[7]. This means that the ANC receives seats in the government proportionate to how many votes they receive as a party, and then choose who will fill those seats. Because of this, voters aren't voting for individual officials, and it is much easier to imagine the ANC acting as one unit. However, since nearly 60 million individual people are being placed into one of the four groups, there is going to be some misrepresentation and misalignment within those groups.

**The Agent - The ANC (A)**

In the South African example, the prime agent is no doubt the ANC, which is the governing party. As a party elected by the voting block, A is in a position to act on behalf of the voters through voting on and enacting various pieces of legislation and providing certain public programs. Since the governmental process is so long and there are so many elected officials, though, the actions of each specific member of A might not be enough to sway a vote a specific way, hence the uncertainty regarding their actions influencing the final outcome. For these reasons, A is absolutely an agent in relation to the three separate principals that make up the voting block. In this case, as is true in any elected government, the goals of A don't always align with the goals of the voting block. For example, A has to worry about re-election and scoring political victories, neither of which necessarily overlap with the primary concerns of voters. This is true especially since there are three different principals that make up the voting block and

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[7] "Election Types." *Electoral Commission : Election Types*, www.elections.org.za/content/Elections/Election-types/.

often have conflicting preferences. Even if A always strives to do what the majority of the principals desire,  it is almost inevitable that one or more of the principals will be left out. For example, assume there is a choice between policies X1 and X2. Perhaps W and M prefer X1, while B prefers X2. In this situation, assuming each of the three principals is equal in size, a perfectly accommodating A will choose X1. This is all well and good for W and M, but not so for B, and even this is when it is assumed that A is always acting in the best interest of the principals and not itself - which is not always the case.

As an agent with three separate principals, A has the costs associated with the relationship that one would expect. For each of the three principals, there are various concealment, diversion, and failure costs that differ in their specific form for each principal. A also receives benefits from the relationships, as one would expect to see in a situation like this.

*A's costs as an agent for W*

As an agent for W, A has the same general costs that they do with the other principals. There are concealment costs, which can look similar to concealment costs for M and B as well, such as striving to keep government intricacies and procedures behind closed doors as much as possible - to prevent external actors such as W from fully observing their every move. The manner in which this occurs with regards to the corruption will be touched on later, so for the purposes of this section W is treated simply as a principal, a group of voters who have their own preferences that determine their voting pattern. A also incurs diversion costs and, finally, the failure costs that arise when the outcome is different than A's preferred one.

*A's costs as an agent for M*

Most of the same concepts and general costs are the same for A with respect to M as they are with W. However, this is where the specifics change a bit. The concealment costs are more or less the same, where A uses the same tactics to hide their behavior from all the

electorate (W, M, and B) such as holding various government meetings in private and the use of confidentiality in some cases. Diversion costs, though, include the BEE payoffs that go towards M to distract these voters and obfuscate the underlying issues that still plague the majority of the country. These payoffs have an additional, unintended social cost of angering some white citizens in the middle and lower class who aren't considered wealthy but don't receive the benefits or opportunities of BEE because of their race. Since the economic standing of these individuals is lower, they fall into the M category. Some of these people have lingering, racially charged ideologies that are fueled by this apparent "giveaway" to the black population, damaging the social fabric further in these areas. Finally, there is the failure cost that comes with the nature of the principal-agent relationship, when the preferences of M and A differ and M gets its desired result - leaving a dead weight of the difference for A to suffer.

*A's costs as an agent for B*

Since B is by far the largest of the principals (in terms of sheer numbers), and has essentially a monopoly on voting power, the costs associated with this relationship are significantly larger and with higher stakes (failure costs). The standard concealment costs apply here, as does the general concept of diversion costs. In this case, though, the diversion costs take the form of public goods (such as public education, internet, water, and more) rather than BEE. These public goods are used to distract from the desires of B, through two different means: first, B is slightly satisfied with the utility offered by the public goods and, second, B's dissatisfaction is partially shifted from the macro issues that face them to the more micro, day-to-day problems and insufficiencies with the public goods. Here, the concealment and diversion costs are increasing over time, since the further away from the memory of Nelson Mandela as time passes, the less his shadow influences voters to vote ANC. Therefore, B will become more focused on the issues facing them and what the ANC is doing for them, rather

than the somewhat blind loyalty to the party of Mandela. So, A must increase the costs that prevent B from becoming frustrated with A and voting them out. The failure cost associated with this specific principal-agent relationship is the catastrophic result of B receiving exactly what they prefer in full - massive land expropriations and reparations to the extent that would bring economic disaster (as was explained earlier). However, it is still possible that small reparations or land expropriations occur, just not on the scale that would bring around this situation, so the failure cost isn't a binary cost of zero or infinite. This is the most vital failure cost to keep low, as the potential loss is far more than just re-election.

### *A's benefits as an agent for W, M, B*

As the primary agent for W, M, and B, A receives the benefits that would be expected from that relationship. There are similar benefits from each of the individual relationships, so they will all be described together. The main benefits for A are the retention of power and stature through continuing to hold enough influence and favor in the voters to gain continued re-election. Additionally, there are any payoffs that come for A through the outcome, if that outcome aligns with A's preferences at all. Since government officials are citizens who are supposedly held accountable to the same laws and policies as the rest of the people of South Africa, the actions that they take affect them as well, some of which lead to payoffs for them.

### The Principal I - The White Upper Class (W)

Separate from the corruption relationship taking place between W and A, W still retains its position as a principal for A. W consists of a small population of citizens with a tremendous amount of wealth and influence, but as voters still have generally the same relationship with A that M and B do. The fact that W needs to use corrupt funds to sway A's preferences (corruption will be touched on in more detail later) shows that W and A don't always have the same preferences - a prerequisite for the principal-agent relationship. Of course, if the two groups had

the same preferred outcome, then there would be no need for W to try to influence A's decision-making. However, because of the gap in information found in the principal-agent relationship, W doesn't always know what exactly A's preferences are. Because of this, W will spend extra time incurring inspection costs towards A, to prevent the spending of extraneous corruption funds. Of course, if W knows that A is aligned with them on a certain issue, then there is no need to waste money in corrupting A in this instance. However, since A's preference isn't at first known to W and A bears costs trying to distract and conceal their true intentions and actions, W must bear costs trying to determine what those are to avoid corrupting more than needed. With this difference from the other principals in mind, W deals with relatively straightforward costs and benefits as a principal, ignoring for the moment the corruption factor.

*W's costs as a principal for A*

As was touched on previously, W bears inspection costs in its relationship with A, both the normal ones expected from a principal (such as the time costs of following the news and constantly checking in on the government's actions) and the extra ones stemming from the need to maximize corruption efficiency. There are also the prevention costs used to persuade A to change their preferences through adjusting incentives. In the voter-government example dealt with here, the most obvious prevention cost is voting, although protest and various political actions are valid examples as well (although more uncommon among W than M or especially B). Promising to vote out officials who differ from W's preferences can hold just as much weight as actually voting them out, unless in a repeated game the promise is found to be illegitimate. Finally, there are failure costs. The failure costs are not only in reference to W or A's preferred outcome - in the cases where M or B (or both) gets their preference and it differs from W, the failure cost is the lost potential utility, even if W and A had the exact same preference in that scenario. If B's ultimate preference of land expropriation and reparations comes to pass, then

the failure costs for W are monumental, and would lead to many of the members of W leaving the country to avoid the danger that could potentially arise for them in South Africa

*W's benefits as a principal for A*

Voters and citizens, like W in this model, gain benefits from the principal-agent relationship with the government through the policies and public goods that are enacted by the government. These vary through time and specific location, but have the potential for positive effects on all voters, including W. In the situations where W's preferred outcome aligns with the outcome (certain policies are enacted that benefit them), they receive the utility benefits from that.

**The Principal II - The Mixed Middle Class (M)**

Similar to W, M holds a principal position to A's agent. This relationship is more straightforward, due to the lack of corruption happening between M and A. There is only one layer in the relationship (at least for the sake of this model). Therefore, the same costs and benefits that would be expected to be seen in any principal-agent relationship are found here as well.

*M's costs as a principal for A*

As a principal for A, M incurs the inspection and prevention costs needed to keep A in check and acting in a way that benefits M. The inspection costs are to "keep an eye" on A, lessening the gap of information between the two actors and making it more difficult for A to act out of turn without being noticed. Inspection costs are used to counterbalance concealment costs taken by A, and in the case of voters in South Africa can include time and opportunity costs of doing research and staying informed about the state of the government and its actions. Prevention costs include persuasion tactics such as various political actions or protests, as well

as tactics that change incentives - the most powerful of which being voting disloyal officials out of government. The failure costs are present as well, as they are for every principal.

*M's benefits as a principal for A*

While M has the same general concept of benefits that W does - namely, the positive outputs associated with the times that the outcome aligns with M's preferences - the specifics of the South African example come into a more clear picture. Like W, M receives benefits from public goods or policies that provide them utility, even if they aren't necessarily their ultimate preferred outcome. Public goods need to be maintained as time goes on, and there are some such as clean water that likely need to be increased compared to the current state. Another benefit that M receives but is decreasing over time is what we can call the "Party of Mandela" benefit, by which the voters gain utility through nostalgia, national/racial pride, or whatever drives them to continue voting for the ANC. However, this decreases over time because the memory of Mandela will weaken as time moves on, especially with younger voters who are more focused on the future than the past because they weren't alive in an Apartheid world.

**The Principal III - The Black Lower Class (B)**

The final principal is B, which consists of the lower-class black voters. While holding the same principal position as W and M, B has the unique situation of having what is essentially a monopoly on voting power. Because of the sheer number of people that make up B, they have the power to sway entire elections whichever way they desire. Of course, this doesn't mean that the officials will act in their best interest once in office, hence the principal-agent problem. However, it does give B the ability to require more attention from A in order to keep them satisfied. Problems arise, though, with the inherent nature of being part of the low class - even more limited access to information than the other principals and lower access to resources that can put political pressure on those already in power. Most of the non-voting power of B comes

down to political protest and rioting, common in industries such as the taxi industry. Therefore, the costs and benefits are slightly different in magnitude and appearance than the other principals.

### B's costs as a principal for A

While the costs do differ from those of W and M to some extent, there are still some similarities, especially with regards to M. Inspection costs are the same in the sense that searching for information and gathering insight into the workings of the government are needed to hold A's actions accountable, but they are significantly higher for those without ready access to the internet or new sources. The opportunity costs presented by B taking the time to learn about current events and the government are substantially higher, when more immediate concerns such as the next meal are more pressing for many individuals. Since there are extra difficulties in finding this information through inspection for B, it isn't just a time cost but often a monetary one as well. Prevention costs are similarly large, but possibly more so. Protests, or more often riots, are not only a time and social commitment and cost, but often lead to dangerous situations and large amounts of damage to surrounding areas - from tires being burned to chunks of asphalt being ripped from the ground. This damages local businesses, removes safe areas for women and children, and scares away affluent residents. In order to be heard, B must often inflict self-damage, which is of course an added cost to the already existing prevention ones. The failure costs associated with B as a principal for A are substantial as well, given the high demands of B and the fact that corruption prevents A from fulfilling these demands, even to a smaller-than-catastrophic extent.

### B's benefits as a principal for A

The benefits that B receives from the principal-agent relationship are mostly the same as the ones that M receives. First are the public goods and policies that provide utility, such as

public education, water, and internet. These are similarly decreasing over time, and especially

with education are very low, as there are a lot of flaws in many of the public services provided to

areas without much money in South Africa. Second is the "Party of Mandela" benefit, where, just

as for M, voters get utility from keeping A in a leadership position, but less so as time goes on.

**Corruption**

Aside from the principal-agent relationships, there is the extra element of corruption in

this model. This section will provide an overview of how each actor either contributes or is

affected by that corruption, through the lens of the principal-agent problem. Defining corruption

can be extremely difficult, so for the purpose of this model it will be defined as "illegal payoffs

given from one actor to another to change that actor's preferences". These payoffs don't have to

be specifically money, as favors and other motivators can be just as effective and illegal as

cash. One thing to note is that this is not too dissimilar from the regular prevention costs

incurred by the principals that aim to change the incentives and motivations for an agent.

However, the difference arises in the legality of the transfers. Having decided that certain

motivators (such as bribes or certain favors - fraud, for example) are deemed immoral for

varying reasons, governments such as South Africa have made them illegal. This is an attempt

to level the playing field for those citizens not in a position to provide these payoffs, those too

poor or uninfluential to compare to the enormous weight thrown around by large companies and

wealthy and well-connected individuals. There is also a moral stigma associated with certain

actions related to corruption that also serves to chastise and punish those who break those

laws.

Since corruption is being defined as essentially payoffs for returns, it can follow the

costs/benefits formula of the principal-agent model. In this case, W is the corrupting principal

that exerts its influence over A, the corrupted agent, through bribes and other means. There have been countless examples of ANC officials being caught in corrupt schemes, most notably former President Jacob Zuma. Zuma was forced to resigned in February of 2018 after serving as President for around 9 years, after being caught in scheme after scheme. Since avoiding detection is part of the corrupted agent's primary goal, there are costs associated with distraction and concealment, similar to those found in the base principal-agent model, with the addition of other costs not found there. And although M and B aren't a part of the corruption relationship taking place, there are still costs and benefits that arise for them, given that A's actions affect the entire nation of South Africa and not just the corrupting W. Some of these costs are just added into the failure costs of the principal-agent relationship, when the results don't turn out according to their preferences, but there are additional ones that take place explicitly due to the corruption.

*A's costs as a corrupted agent*

In order for A to even have the opportunity to become corrupt in the first place, A must find a willing partner to perform the corruption with. Given that corruption is by its definition illegal, there are substantial risks and costs associated with locating that partner. Not only does the search for a specific partner or partners require a cost, there is also the cost of negotiating with that partner to determine the price they are willing to pay and for the service they are hoping to extract for that price. Part of each of these two costs, searching and negotiating, is the need to remain secretive and unexposed in the corrupt dealings. Obviously, if an external actor were to find out about the corrupt dealings, there would be tremendous penalties for both parties, ranging from heavy fines to jail time. This risk can be described as a cost by calculating the value of the penalty multiplied by the probability of being caught. Probability of being caught will increase over time, as the more times A engages in corrupt acts, the higher the chance that

they get caught at least once. To counteract this, A engages in covering-up activities that bear their own cost but aim to conceal the corruption to an extent that the probability of being caught is lowered to a level that A deems is worth the risk of partaking. These covering-up costs also increase over time, as more and more officials are caught in corruption. With each new official caught and punished, both the population and the world take more notice and therefore keep a closer eye on A as a whole. More media coverage and more of a desire to stop the corruption leads to a faster spread of information and easier access for even those at the lowest economic level. This not only increases the covering-up costs, but also the normal concealment and diversion costs associated with the principal-agent relationship, since the information gap between A and the principals is lower. Finally, there are moral costs that A suffers, due to the illegal and immoral nature of their actions.

### *A's benefits as a corrupted agent*

Some of the benefits that A receives from the corruption taking place are easy to identify - any monetary bribes or favors given as a result of the agreement. Clearly, this is one of the primary motivators that prompts A to become corrupt. In addition to these payoffs, though, A also benefits from maintaining strict control over the power structure of South Africa. Because of the built-up middle class that resulted from the corruption and the continued investment of the corrupting class, along with enough payoffs to B,  A retains the voting support that it needs to hold its place as the dominant party in the country. Clearly, they have deemed these benefits worth the costs and risks associated with the corruption, although the benefits are stagnant to decreasing over time and the costs are increasing, making this an unsustainable reality for A to continue with into the long term without some changes.

### *W's costs as a corrupting principal*

Many of the costs that A suffers as a result of the corruption are the same that W faces as well. The negotiating and searching costs are the same concept, although look different from the side of a private citizen than a government official. W also wants to engage extra heavily in the inspection costs to ensure that A is holding up their end of the corruption agreement, rather than just taking the bribe and running. Covering-up costs and the risk of penalty times probability of being caught are likewise similar, operating under the reality that A and W are subject to the same laws as each other. Just as with A, these costs are increasing as more people get caught in it, although since W is a principal and they have no concealment or diversion costs, those clearly can't be raised. The one major difference between W and A's costs is that W has to provide the actual bribe to A, which can be either money or other services or favors. Finally, just as with A, W suffers from the extreme moral costs that come with performing the act of corruption, and any social externalities that come along with that.

*W's benefits as a corrupting principal*

Despite those costs, W chooses to engage in corruption, signifying that the benefits are larger than those costs, or at least have the potential to be for the risk-taking members of W. The biggest immediate benefit for W is that it maintains the current socio-economic structure of the country. What this means is that land expropriations and massive reparations don't happen, which is a huge benefit for W, since those policies would almost exclusively target them. Then it would be a decision of starting over (from zero in some cases), or leaving the country. Either way, their economic standing and socio-political influence would be significantly smaller than it is currently, and engaging in corruption helps to prevent this from happening. Into the future, this maintenance of the status quo means that A continues to stay the dominant political party, which allows W to remain in a position of influence in South Africa (since they know that A is

corruptible, and don't have to go through brand new searching and negotiating costs with whichever new party were to come next).

*M's costs as a result of W and A's corruption*

Although M and B don't partake in the corruption taking place in South Africa, the actions taken through corruption have an impact on the country as a whole - including both M and B. Since M knows that corruption is occuring, because officials have been caught previously, they keep an eye on both W and A to try to prevent it in the future. These are monitoring and preventing costs, and are similar to the inspection and prevention costs that happen in the principal-agent model, but are more specific and look for corruption instead of just knowing what A is doing in terms of decision-making. These costs decrease over time, as more officials get caught in corruption, for the reasons stated previously. Additionally, M suffers from the costs of any negative externalities that can arise from the corruption and the actions that the corrupt actors take. Since M and W don't share interests, then when W uses their corrupt influence to help determine the outcome, there is a relatively high chance that M suffers a higher expected failure cost than without the corruption and the externalities. Finally, there are the moral costs to society that are suffered by all of South Africa, and M is a part of that.

*M's benefits as a result of W and A's corruption*

One of the most obvious benefits that M draws from the corrupt system in South Africa is the BEE system that allows these individuals to rise from the lower class to a higher social and economic status. They are receiving a payoff as a direct result of the corruption, which in and of itself is a positive thing for M. This payoff also allows for further upward mobility and economic opportunity, since moving from a position of some influence and economic standing is easier than from a position of struggling just to find food and safety. Other benefits received are the potential penalties that A and W must pay to society when they are caught in corruption. These

penalties help offset the moral costs associated with corruption. Finally, the biggest benefit to M is that the ultimate preference of M and B, the land expropriation and reparations that would spell disaster for the country, is never reached. Although this means that their preference is never fully attained, which seems as if it would be a net negative for a principal in a principal-agent problem, this is actually a good thing for M, at least in the short term. In this case, it is unclear if the benefits outweigh the costs or not for M. Since M has no choice in the corruption, unlike A or W, there is no guarantee that the benefits are larger than the cost. So, the way they aim to maximize utility here is to minimize the costs in a way that allows the benefits to still occur to the extent that they begin to be larger than the costs.

### B's costs as a result of W and A's corruption

B is the principal that no doubt suffers the most from the corruption that is rampant in South Africa. The costs for B are similar to those of W, but are more significant given the economic disparity and relative starting positions of the two principals. B also engages in monitoring and prevention costs, although the prevention costs are higher since each individual citizen in B has less social and political influence than in W or M. These costs are decreasing over time, as more officials are caught in corruption, so as time goes by B will be able to keep track of A's actions (corrupt and not) more closely.

Because of the corruption, the current social structure of South Africa - especially the creation of the middle class - leaves very little influence to be had for B. A much smaller amount of support from B is needed for A to remain in power than would be if the corruption were not as rampant, so B suffers from a lack of leverage in almost all areas except for raw voting numbers. As a result, the moral costs are significantly higher for B than for the others, since B also has

the least ability to change their situation and still have to bear the brunt of the social issues (those that arise directly from corruption and also those that don't) that face the nation.

*B's benefits as a result of W and A's corruption*

The major benefits that B gets from the corruption are the penalties paid from the caught corrupt officials to society and the positive externalities that result. Of these externalities, the biggest one is that B doesn't actually receive their ultimate preference that would result in disaster for the economy and South Africa as a whole. While they lose out on the utility that comes with receiving their desired outcome and still have a net negative utility, it is a more desirable outcome at this point than the alternative. However, this is still a very difficult situation for B that shows no sign of improving in the near future. Something must change in the country of South Africa to alleviate the poverty and desperate situation that many of its citizens are facing on a daily basis.

**Utility**

Each of the actors has their own unique utility function that consists of the costs and benefits associated with their respective role in the model: $U_i(C_i, B_i)$. These utility functions are under restrictions, such as time and available money, and each actor aims to maximize their $U_i$ under these restrictions. The equilibrium that will be reached in setting up and solving these functions as a system of equations is beyond the scope of this paper. However, valuable takeaways can still be drawn from the outline provided and the fact that each actor's goal is their own maximized $U_i$, and it can give some insight into the motivating forces behind much of the political and socio-economic action that has occured in South Africa in the years since Apartheid ended.

**South Africa's Socio-Economic Landscape**

In light of the model that has been laid out, a clearer explanation for the long stagnation that has been occuring in South Africa since the end of the Apartheid regime emerges. By some metrics, the economy has boomed and given rise to huge growth in specific sectors. The nominal GDP has increased from $139.752 billion in 1994 to $348.872 billion in 2017, an average of 4% increase per year[8]. However, the vast majority of that growth happened in the years immediately following the change from Apartheid to democracy. In the years from 2009 to 2018 when Jacob Zuma held the presidency, the GDP only experienced around 2% yearly growth. This includes a massive economic downturn from 2011 to 2016, during which it dropped from $416.419 billion to $295.747 billion in just 6 years. The corruption in the South African government, and Zuma's presidency in particular, has been incredibly damaging to not only the nation's economic development but also the social fabric in many ways - in spite of the progress made in certain areas. While there are a number of different socio-economic factors that can be viewed through the corrupt principal-agent problem lens, there are three in particular that will be explored in more detail: the education system that consistently fails to provide adequate development for students in the majority of the country, extremely low voter turnout and confidence, and social policies that have been enacted with mixed results.

**Education**

Currently, one of the major drivers in economic disparity in South Africa is the inequality in educational opportunity and available resources. More than half of the students in the country who are able to test with high distinction in math and science attend just 200 high schools, out of the 6,676 total, and in 47% of those not a single student is able to reach that mark[9]. Despite a relatively high amount of public funds being spent in education, students continue to struggle, as

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[8] "South Africa ." *The World Bank*, data.worldbank.org/country/south-africa?view=chart.
[9] *The Economist*, "South Africa's youngsters are let down by a lousy education system" April 25, 2019. Retrieved from https://www.economist.com/special-report/2019/04/25/south-africas-youngsters-are-let-down-by-a-lousy-education-system

only between 40-50% of students are able to pass their senior year matriculation exam, and

only around 6% complete their university education. Since the jobless rate is around four times

as high for high school graduates as it is for college graduates, the impact on the economy and

the social mobility of these students is affected largely by their ability to be taught and complete

their higher education. The reasons behind these struggles are numerous, including that the

matriculation exam is only offered in Afrikaans and English (the two white languages, and also

only the 3rd and 5th most spoken languages), while most black students grow up learning one

or multiple of the other 9 official state-sponsored languages such as Sepedi or Setswana. This

disadvantage is especially clear as the percentage of black South Africans who last long

enough to graduate university is only around 2.4%[10]. Another major reason behind the

ineffectiveness of the educational system is the corruption of the South African Democratic

Teachers Union (SADTU). In 2016, John Volmink submitted a report to the South African

government detailing an investigation into SADTU that documented massive amounts of

corruption and political misconduct. It found that of the nine provinces in South Africa, only three

had public education systems that were even still under control of the Department of Basic

Education, and that "in all other provinces, SADTU is in de facto control." The report also stated

that at this point in relation to SADTU and public education, that, "obtaining a desirable position

through bribery and corruption is a naturalised and normalized procedure. After all, that is how

things are done. The environment has become a corrupt one."[11]

So, SADTU has successfully managed, through various practices, to both strong-arm the

government into relinquishing almost all of its authority in the public education sector and to

continually sustain a massively corrupt system that allows subpar and unqualified teachers and

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[10] Stats SA Statistics South Africa. (2016, June 30). Retrieved from http://cs2016.statssa.gov.za/
[11] John Volmink. Report of the Ministerial Task Team Appointed by Minister Angie Motshekga to Investigate
Allegations Into the Selling of Posts of Educators by Members of Teachers Unions and Departmental Officials in
Provincial Education Departments. Department of Basic Education. 18 May 2016.

administrators to gain positions in education. Students who are unable to afford private school,

where the union has much less influence and schools are in a position to be able to hire better

teachers and fire those who underperform, are placed in a position where there is no

opportunity for success or learning. In the principal-agent model, this is one of the methods of

corruption that allows W to continue to strengthen M (through the use of private schooling

opportunity) while failing to give B the sufficient public goods to keep them satisfied with their

circumstance. We see A and W benefitting from the corruption, through the gains of corrupt

exchanges - favors or money - and W maintaining it's control over A in the area of education.

The benefits that B receives from public education are minimal to nonexistent, and while the

improvements from pre-Apartheid educational opportunities can't be ignored, they are

insufficient to lift much of B out of the immense poverty that they have struggled with for

decades.

**Voter Involvement and Confidence**

Citizens in South Africa have become disillusioned with their government, many

developing an apathy towards politics that comes with repeatedly being let down by those in

power to make any positive or noticeable change. Logically, it is fair to assume that nations

where citizens believe that their vote makes a difference will be more likely to have populations

that get out to vote and just be generally involved in the political process. There can be an

element of national pride or feeling of duty that contributes to this, which can also provide a

reflection of a person's opinion of the current state of their country. In South Africa, voter turnout

has been in constant decline since the ANC took control immediately following the end of

Apartheid. The proportion of eligible citizens that are even registered to vote has dropped by

almost 1% per year since 1994, and the percent of voting-age citizens that actually vote in the

elections has fallen all the way from 86% in the first election to a mere 57% in 2014. That

means of South Africans who are 18 or older and are legally able to vote, an astounding 43%

decided not to use the power afforded to them to help determine the authority structure in their

government[12]. The implication that comes with this is that young people are less involved in the

political process, at least in terms of voting, which is verified by the fact that as of 2014, only

33% of citizens between the ages of 18-29 was registered to vote[13]. The important difference

between citizens of this younger generation and those that came before is the ability to

remember the experience of Apartheid and that initial hope that the ANC brought through

Mandela and other leaders. South Africans who are unable to remember, or who simply are too

young to have experienced the pre-Apartheid world, have only known the effects of ANC

leadership. The disturbingly low voter turnout and general apathy in the present-day political

process is a reflection of the increasing lack of faith in the government to provide for the people.

In 2014, the ANC won majority party status despite only receiving votes from 35% of the eligible

population, or 62% of the votes actually cast. The 65% of voters that either weren't registered to

vote, decided not to vote, or voted against the ANC is nearly double the number that actually

voted to elect the ANC, showing that despite constantly winning elections, there is not as much

support for the party as it might appear at first[14]. Apathy is the word that comes to mind, which

likely stems from either a weariness with politics or a mistrust of those in power to affect real

and positive change.

      Although South Africans aren't as involved in the legal political process as one might

expect, other forms of political action aren't uncommon. A 2019 study that looked at the rates

and causes of South African's participation in other political actions found that nearly 50% of

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[12] Pillay, S. R. (2019, January 21). Apathy is a silent majority when 43% of South Africans refuse to vote. Retrieved from
https://www.dailymaverick.co.za/opinionista/2019-01-21-apathy-is-a-silent-majority-when-43-of-south-africans-refuse-to-vote/
[13] Schulz-Herzenberg, Collette. "Voter Participation in the South African Elections of 2014." ISS Africa. August 07, 2014. https://issafrica.org/research/policy-brief/voter-participation-in-the-south-african-elections-of-2014.
[14] Schulz-Herzenberg, Collette. "Voter Participation in the South African Elections of 2014." ISS Africa. August 07, 2014. https://issafrica.org/research/policy-brief/voter-participation-in-the-south-african-elections-of-2014.

those observed attended Ward committee meetings (a formal opportunity for constituents to bring ideas and complaints directly to their elected officials), and slightly more than 50% attended community meetings (a less formal meeting than a Ward committee meetings, but with the same general purpose). There were seven total types of non-voting political action that were observed in the study, and two of the major contributors to participation in these actions were ethnicity and economic standing. Black South Africans were more likely to take part in some type of political action, and economic standing was negatively correlated - meaning that as wealth decreases, involvement in political action increases (Gordon, 2019).

Both low voter turnout and high involvement in non-voting political action (especially for poor and black citizens) fit into the expectations set out by the principal-agent model. Since B is failing to fully use its voting power to change the incentives for A, the diversion and concealment costs are lower. There is of a need for A to provide public services for B, as an insufficiently large proportion of that population is taking part in elections enough to cause change in leadership. The illusion of Mandela's ANC is quickly wearing out, and B is becoming more and more dissatisfied with the status quo of A, although the ways that is becoming shown is through political action rather than voting. Since these are the two main ways of changing incentives for A in the model that was laid out, B is still able to put pressure on A but without the threat of removal from office. This allows W and A to focus their corruption efforts on maintaining M's support, and why M and W together are sufficient to outvote the vastly larger B population.

**Social Policies**

Many of the policies implemented by the ANC during their time in leadership since 1994 have had either mixed or negative results on the economic landscape of South Africa, at least for large sections of the population. Around one in three South Africans receives some sort of grant from the government, for reasons such as welfare, elderly assistance, or handicap, among

others (Plagerson, 2019). However, it is clear that the money provided to this large section of the population does nothing to affect either the social divide in the nation or the underlying economic factors that drive poverty. Sophie Plagerson outlines one of the key issues with much of the social policy in South Africa, which is the influence that the private sector has over the implementation of many of the programs that are meant to bring positive change. In a system where corruption has been as rampant as it has been, there is a very real danger that the legitimacy of many of these social programs and agencies has been compromised. An example is given of the South African Social Security Agency (SASSA), which is the federal agency in charge of overseeing many social grants and welfare provisions for the nation. Plagerson writes that, "events have highlighted SASSA's vulnerability to political interference, which has overridden the benefits of its administrative independence," and that, "ministerial intrusion has sanctioned the appointment of a private service provider to implement social assistance delivery mechanisms, thereby jeopardizing the legitimacy of SASSA" (Plagerson, 2019). While there are without question some potential benefits of including the private sector in public policy implementation, the fact that the current system is as corrupt as it is gives worry to the legitimacy of much of the supposed social work being provided.

Even if there was no corruption in this area, though, there remains the question of whether grants or monetary handouts even bring any improvement to social or economic standing. A 2018 study found that the highest indicators of poverty in South Africa were education, employment, and health - which includes sanitation and access to clean water (Fransman, 2019). Monetary grants do nothing to mend any of these issues, and there is no change in opportunity for any of these areas through simply being given a check to pay for the next meal. While of course payouts allow families to feed themselves and pay for minor life expenses, the root problems of a lack of education, high unemployment, and unsanitary and

unhealthy living conditions continue to fester under the surface. So, any amount of monetary redistribution has been and will continue to be insufficient to change the reality for so many South Africans in the low black class.

Black Economic Empowerment (BEE) was initially presented as a way for black South Africans to rise up the ranks and increase their employment and financial opportunities. While this has been true to an extent, the overall effect has been to actually entrench the current reality and to allow the white upper class to maintain large influence. Gavin Capps writes concerning BEE that "the rapid economic elevation of leading lights in the former liberation movement would enable white capital to extend its influence over the new government and its policy decisions" (Capps, 2012). Allowing specific members of the lower class, especially those who had played a big role in the social reform from the 1990s, to rise in social standing and influence would do nothing to negatively affect the white upper class, and would actually create the middle class capable of entrenching their power. This is exactly what is seen in the model, as the creation of M serves just as much purpose keeping W in an authority position as it does in benefitting M. Huge segments of the population are unaffected by these policies, though, so it is once again more symbolic than actually effective in practice.

The failure of implemented social policies to fix the institutional and systemic challenges faced by B have perpetuated the class system that consolidates power in the hands of the corrupt W. There are absolutely some costs to W and A as a result, through grants and payouts to M and B. While B receives these, they have diminishing value since they are only effective in the very short term and it's clear to B that there is a failure for long-run improvement and mobility. As Mandela's shine continues to wear off, B will continue to become more and more dissatisfied with the status quo, and will eventually require larger scale reform to appease.

**Conclusion**

South Africa is in a state of limbo, being simultaneously a highly successful and economically advantaged, yet poverty-stricken and culturally divided, nation. Corruption between the private sector and the government is rampant, and has both led to and been a product of many of the issues facing South Africa. However, it has had a positive effect as well, maintaining the social fabric just enough to prevent revolution or reparations to the point of self-destruction. This complicated issue can be viewed through the lens of the principal-agent problem, where the ANC party sits as the agent for the three principals: the corrupt white upper class, the mixed race middle class, and the black lower class. Although this is clearly an oversimplification of the current situation, it gives us a way to look at many of the factors that affect the socio-economic landscape of the nation and to observe some of the motivations behind the actions that affect them, including education, voter involvement, and various social policies. While this balance is tenuously held at the moment, South Africa is in very real danger of slipping back into pre-Apartheid polarization, which would potentially bring about radicalization in either direction and steps towards real danger for the country. There is hope for the future, though, as new president Cyril Ramaphosa has already been making strides to reduce corruption and take actions towards restoring respect and the core message of equality for all citizens to the nation. Hope in the future is rising, and there will be a vision towards the future than many South Africans can get behind if Ramaphosa is re-elected in the coming days. Steps towards repairing the fractured social fabric and inefficient economy while preventing full-scale land expropriation will go a long way towards solving the principal-agent problem that has unfortunately perpetuated many of the issues facing this country.

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**Appendix i: Figures**

*Figure I. Costs and Benefits for the Corrupt Agent (A).*

| Costs | Benefits |
|---|---|
| *Costs as an Agent for W*<br><br>● Concealment costs<br><br>● Diversion costs<br><br>    ○ Public goods, etc.<br><br>● Failure costs | ● Power retention<br><br>● Payoffs from outcome |
| *Costs as an Agent for M*<br><br>● Concealment costs (increasing in long term)<br><br>● Diversion costs (increasing in long term)<br><br>    ○ Black Economic Empowerment (BEE), etc.<br><br>● Failure costs | |
| *Costs as an Agent for B*<br><br>● Concealment costs (increasing in long term)<br><br>● Diversion costs (increasing in long term)<br><br>    -Public goods (education, public WiFi, water<br><br>●    access)<br><br>● Failure costs (could be catastrophic if too high) | |

| | |
|---|---|
| ●       -Land expropriation, reparations, etc | |
| *Corruption* | |
| ●  Searching costs<br><br>●  Negotiating costs<br><br>●  Covering-up costs (increasing in long<br>    term)<br><br>●  Penalty x probability of being caught<br>    (increasing over time)<br><br>●  Moral costs | ●  Transfer of corrupt money/favors (bribe)<br><br>●  Power retention (votes from M as a result<br>    of wealth transfers) |

*Figure II: Costs and Benefits for the Corrupting Principal (W).*

| Costs | Benefits |
|---|---|
| *As a Principal for A* | |
| ●  Inspection costs<br><br>●  Prevention costs<br><br>    ○  Persuading<br><br>    ○  Changing incentives (voting)<br><br>●  Failure costs (massive if B gets<br>    preference) | ●  Public goods |
| *Corruption* | |
| ●  Searching costs | ●  Removes/lowers failure and deadweight |

| | |
|---|---|
| ● Negotiating costs<br><br>● Bribe/favors<br><br>● Cover-up costs<br><br>● Penalty x probability of being caught (increasing in long term)<br><br>● Moral costs | loss<br><br>    ○ Retention of land/wealth<br><br>● Maintain influence through A's power |

*Figure III: Costs and Benefits for the Second Principal (M).*

| Costs | Benefits |
|---|---|
| *As a Principal for A* | |
| ● Inspection costs<br><br>● Prevention costs<br><br>    ○ Persuading (political action/protest)<br><br>    ○ Change incentives (voting)<br><br>● Failure costs | ● Public goods (decreasing utility in long term)<br><br>● "Party of Mandela" benefit (decreases in long term) |
| *As a Result of A and W Corruption* | |
| ● Costs of monitoring and preventing corruption (decreasing in long run)<br><br>● Higher failure cost<br><br>● Moral costs<br><br>● Negative externalities (since M, W don't | ● Possible penalties from actors caught in corrupt activities<br><br>● Payoff (BEE)<br><br>    ○ Increased economic opportunity<br><br>● Lowered chance of pure preferred |

| share interests) | outcome (disaster situation) |
|---|---|

Figure IV: Costs and Benefits for the Third Principal (B).

| Costs | Benefits |
|---|---|
| *As a Principal for A* | |
| • Inspection costs (to tell if A is benefitting them or not)<br>• Prevention costs (high, given limited resources of the poor class)<br>  ○ Persuading (political action/protest)<br>  ○ Change inventives (voting)<br>• Failure costs | • Public goods (decreasing utility in long run)<br>• "Party of Mandela" effect (decreases in long run) |
| *As a Result of A and W Corruption* | |
| • Costs of monitoring and preventing corruption (decreasing in long run)<br>• Higher failure costs<br>• Less influence (prevention costs increased)<br>• Moral costs<br>• Negative externalities (since B, W don't share interests) | • Possible penalties from actors caught in corrupt activities<br>• Positive externalities (only in short run)<br>  ○ Economy isn't wrecked in Zimbabwean fashion |

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| ○ In long run, can't remove self from extreme poverty and unemployment | |