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**THE EFFECT OF THE VOTING FRANCHISE ON
PUBLIC POLICY DECISION MAKING AND PROVINCIAL GOVERNMENT
SPENDING FOR HIV AND AIDS IN SOUTH AFRICA**

by

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**Submitted In Partial Fulfilment of the Requirements for the Doctor of Philosophy
Public Affairs Degree in the Faculty of Economic Management Sciences
School of Public Management and Administration**

UNIVERSITY OF PRETORIA

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NOVEMBER 2007



DEDICATION

Behind every great man there is a great woman. This is dedicated to the great women who have unquestionably supported this yet to be great man. To Lizzie Myrick my mother and to Annie Mae Royster her mother and my grandmother, a never ending lifelong debt is owed. I love you both more than life. As well, this work is dedicated to Dr. Puleng M. Ramataboe. Without her support, love and friendship I would never have come to know mother Africa.



ACKNOWLEDGEMENTS

No dissertation should begin without first acknowledging one's supervisor. In his way, Professor Jerry O. Kuye has influenced and further developed the character of this PhD candidate. Importantly, the learning has extended beyond the classroom, consequently shaping in a positive way the desire to engage in academic discourse and research. Much has been learned but one lesson will never be forgotten. That is, research that addresses issues of a qualitative nature is difficult when a quantitative approach is used. This dissertation has taken on that challenge. While providing caution, Professor Kuye has nevertheless provided the vital support needed to pursue the research interest of public policy decision-making and provincial government spending for HIV/AIDS.

Additionally, this work would not have been possible without the consideration and support of the following individuals and institutions:

- Many thanks to Norman Jacobs, Dean of the Business Faculty, Cape Peninsula University of Technology.
- Respect is due and given to Dr. Harry Ballard, Head of Department, Public Management, Cape Peninsula University of Technology.
- Undying gratification to Gregory Davids, Lecturer in Public Management, Cape Peninsula University of Technology.
- Great admiration for a strong woman known as Noleen Leach, Law Lecturer, Cape Peninsula University of Technology.
- Wholehearted thanks to Professor Dennis Smith, New York University Wagner School of Public Administration, for always receiving me on my visits to New York.
- Recognition is due to PENTECH, the now Cape Peninsula University of Technology, where I was employed as a Lecturer in Public Finance and Policy while doing the research for this work.
- Recognition is due to the New York University Wagner School of Public Administration where my interest in Public Management and Administration was nurtured.
- Recognition is due to the University of Pretoria for accepting me into the PhD programme and recognising the potential within me.
- Recognition is due to my *Alma Maters*, the University of West Haven, Pace University, Mount Saint Michael's Academy High School, Saints Phillip and James Primary School and the Saint Anthony of Padua Primary School.



- Finally, recognition is due to the USAF, where I learned to be an officer, gentleman and an intellectual.

These are the men, women and institutions that have had a profound impact on my life and journey towards becoming an intellectual. Collectively, they and many others who remain to be acknowledged are responsible for the man and the person responsible for turning out this work. Without them I would not be the man I am today.

Darrell R. Myrick
South Africa
November 2007



TABLE OF CONTENTS

| | Page No. |
|-----------------------|----------|
| Dedication | i |
| Acknowledgements | ii |
| List of Figures | xi |
| List of Tables | xi |
| List of Appendices | xii |
| Definitions and Terms | xiii |
| Abstract | xxi |
| Bibliography | 155 |
| Appendices | 165 |



CHAPTER ONE

PUBLIC POLICY DECISION MAKING AND PROVINCIAL GOVERNMENT SPENDING FOR HIV/AIDS

| | Page No. |
|---|----------|
| 1.1 Introduction | 1 |
| 1.2 Public Policy Decision Making | 3 |
| 1.3 The Franchise To Vote And Public Policy Decision Making | 4 |
| 1.4 Provincial Spending And Public Policy Decision Making | 8 |
| 1.5 Research Problem And Hypothesis | 10 |
| 1.6 Research Issues | 11 |
| 1.7 Research Methodology: Overview | 13 |
| 1.8 Limitations And Delimitation | 15 |
| 1.9 Motivation For Research | 16 |
| 1.10 Contribution | 17 |
| 1.11 Outline Of Dissertation | 18 |
| 1.12 Conclusion | 19 |



CHAPTER TWO

LITERATURE REVIEW

| | Page No. |
|---|----------|
| 2.1 Introduction | 21 |
| 2.2 The Voting Franchise And Government Spending | 25 |
| 2.3 Distribution Policy And Voter Turnout | 31 |
| 2.3.1 The Distributive Policy | 33 |
| 2.3.2 Regression Variables | 34 |
| 2.3.3 Empirical Findings | 35 |
| 2.4 Latent Groups And Public Policy Decisions | 38 |
| 2.4.1 Empirical Model | 39 |
| 2.4.2 Empirical Results | 42 |
| 2.5. Collective Actions And Public Policy Decision Making | 45 |
| 2.5.1 Measuring Data and Methodology | 47 |
| 2.5.2 Results | 51 |
| 2.6 Summary And Relevance To Dissertation | 51 |



CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

CAUSES AND EFFECTS ON SPENDING FOR HIV/AIDS

| | Page No. |
|--|----------|
| 3.1 Introduction | 55 |
| 3.2 Research Design | 56 |
| 3.3 Operationalisation: Methodology | 62 |
| 3.4 Variables and Data Sets | 68 |
| 3.5 Statistical Approach and Techniques | 72 |
| 3.5.1 Descriptive Statistics | 73 |
| 3.5.2 Bivariate Regression and the Coefficient of Determination | 73 |
| 3.5.3 Multicollinearity | 75 |
| 3.5.4 Multivariate Analysis | 76 |
| 3.5.5 Multiple Correlation and the Coefficient of Multiple Correlation | 78 |
| 3.5.6 Test of Hypothesis and Confidence Interval for r | 80 |
| 3.6 Summary | 81 |



CHAPTER FOUR

PUBLIC POLICY FOR HIV/AIDS

CASE STUDY OF SOUTH AFRICAN PERSPECTIVES

| | Page No. |
|--|----------|
| 4.1 Introduction | 83 |
| 4.2 Macro And Micro Perspectives on Policymaking | 86 |
| 4.2.1 Macro Perspective | 87 |
| 4.2.2 Perspective | 89 |
| 4.3 Policy Before And After 1994 | 93 |
| 4.3.1 Policy Before 1994 | 94 |
| 4.3.2 Policy After 1994: Post Apartheid Policy on HIV/AIDS | 96 |
| 4.4 Activism, AIDS and The Median Voter | 100 |
| 4.4.1 Communicating Policy Alternatives | 101 |
| 4.4.2 The Median Voter and Midline Preferences | 102 |
| 4.5 Political Incumbents and Informed Constituents | 104 |
| 4.6 HIV/AIDS and System Effects | 105 |
| 4.7. The Unitary State and HIV/AIDS | 109 |
| 4.8 Summary | 111 |



CHAPTER FIVE

CASE DATE ANALYSIS

CAUSES & EFFECTS FOR PPROICIAL SPENDING ON HIV/AIDS

| | Page No. |
|--|----------|
| 5.1 Introduction | 115 |
| 5.2 Descriptives | 120 |
| 5.3 Bivariate Regression Analysis | 124 |
| 5.3.1 Provincial Spending and Voter Turnout Models | 125 |
| 5.3.2 National Spending and Voter Turnout Models | 127 |
| 5.3.3 Provincial Spending and Voter Turnout Models - Income/Need | 129 |
| 5.3.4 National Spending and Voter Turnout Models - Income/Need | 130 |
| 5.4 Multivariate Regression Analysis | 132 |
| 5.4.1 Multivariate Regression Analysis | 133 |
| 5.4.2 Multicollinearity | 137 |
| 5.4.3 Optimising the Regression Model | 138 |
| 5.4.4 Test of Hypothesis | 142 |
| 5.5 Test of Hypothesis – Correlation Coefficient: Fisher’s Z | 143 |
| 5.6 Hypothesis: Confirm <i>v.</i> Refute – Implications for Policy | 145 |



CHAPTER SIX

CONCLUSION

| | Page No. |
|-----------------------------------|----------|
| 6.1 Introduction | 147 |
| 6.2 Motivations | 147 |
| 6.3 Conclusions Drawn: Inferences | 149 |
| 6.4 Recommendations | 152 |
| 6.5 Conclusion | 154 |



| LIST OF FIGURES | | Page No. |
|------------------------|---|----------|
| Figure 3.1 | Time Line Illustrating Causal Relationships | 67 |
| Figure 4.1 | Multilevel Perspectives and Relationships | 87 |
| LIST OF TABLES | | |
| Table 2.1 | Example of Table for Regression Estimates for Turnout | 42 |
| Table 3.1 | Individual Cases (Provinces) Comprising the Sample | 65 |
| Table 3.2 | Variables Included In Multiple Multivariate Equations | 66 |
| Table 3.3 | Variables and Data Sets | 68 |
| Table 3.4 | Variables and Data Sets | 69 |
| Table 3.5 | Variables and Data Sets | 69 |
| Table 3.6 | Variables and Data Sets | 70 |
| Table 3.7 | Variables and Data Sets | 70 |
| Table 5.1 | SPSS Output: Descriptives | 121 |
| Table 5.2 | Bivariate Analysis of Provincial Spending for HIV/AIDS | 125 |
| Table 5.3 | Bivariate Analysis of National Spending for HIV/AIDS | 128 |
| Table 5.4 | Bivariate Analysis of Prov. Spending for HIV/AIDS – Need/Income | 130 |
| Table 5.5 | Bivariate Analysis of Nat. Spending for HIV/AIDS – Need/Income | 131 |
| Table 5.6 | Bivariate Models – Provincial Spending HIV/AIDS | 131 |
| Table 5.7 | Variables Included In Multiple Multivariate Equations | 134 |
| Table 5.8 | Summary of Models Resulting from Backward Eliminations | 135 |
| Table 5.9 | Partial Correlation Coefficients for Multivariate Variables | 136 |
| Table 5.10 | Significance of Variables for Optimal Regression | 139 |
| Table 5.11 | SPSS Coefficients for Test of Hypothesis Slope | 142 |



| LIST OF APPENDICES | | Page No. |
|---------------------------|--|-----------------|
| Appendix 1 | Sources and References for Variables Included in Multivariate Equations | 165 |
| Appendix 2 | SPSS Output for Table 5.5 – Provincial Spending | 169 |
| Appendix 3 | SPSS Output for Table 5.3 – National Spending | 172 |
| Appendix 4 | SPSS Output for Table 5.4 – Provincial Spending | 175 |
| Appendix 5 | SPSS Output for Table 5.5 – National Spending (Need/Income) | 177 |
| Appendix 6 | SPSS Output for Multivariate Regression Model | 179 |
| Appendix 7 | SPSS Output Bivariate / Multivariate Variables Optimal Regression | 182 |
| Appendix 8 | SPSS Output Bivariate / Multivariate Variable Revised Optimal Regression | 183 |
| Appendix 9 | Optimal Model w/Variables VOTE_TURN_04/EDUCA_01 Revised Optimal Regression_2 | 184 |



DEFINITIONS AND TERMS

The following definitions are offered to facilitate clarity in reading the following chapters:

1. Unitary State: There are those who would argue that South Africa is a federal state. In contrast, Levy and Tapscott (2001:68) noted that section 1 of the Constitution of South Africa (Act 108 of 1996) describes South Africa as one sovereign democratic state, with power concentrated in the national sphere of government. Generally, provinces accept that national government takes precedence in legislative matters. An implication, however, is that policies that are legitimised by way of legislation could in the future be challenged by the provinces in the constitutional court.

2. Federalism: A key characteristic of federalism is that state [provincial] political systems encompass leadership that will lend its allegiance to central government while retaining some independence from central [national] government. Notably, in the U.S. the mid level sphere of government is referred to as a state – e.g., the state of New York or the state of California. In South Africa, the mid level sphere of government is referred to as the province – e.g., the province of KwaZulu Natal. That a subnational will “lend” its allegiance is highly descriptive in that the subnational will at times subscribe to the will of national government and at times see itself as a sovereign state addressing any policy areas not claimed to be the purview of national government. To merely describe the federal state as being decentralised understates the dynamics of state [provincial] politics – e.g., unity and disunity between state parties and national parties of the same ideology. Key (1959:341-342, 368), for example, aptly discussed the paradox of the



federal state where the state [provincial] government impacts the national government, thus appearing to be decentralised at times and at times highly centralized. In other words, there is the potential in a federal system to appear to be somewhat unitary at times, although Key hesitates to utilize the term unitary in his discussions.

3. *Devolution:* The transfer of rights and power from one higher sphere of government to a lower [subnational] sphere of government. Being a feature of the new public management, Ormond and Loffler (2005) noted that there is a movement away from centralization in public management. Implying greater support for decentralisation, their discussion argued that reform efforts have been centered on devolving authority from central government to lower [subnational] levels of government. Devolution has the potential to achieve greater responsiveness to citizens' demands.

4. *Electorate:* A body of enfranchised individuals who are qualified to vote. Interestingly, Price (1968:114) noted that contested elections and organised parties might be essential for effective government contestability and active political parties. This, however, will not guarantee control by the electorate. Like politicians, “the electorate still manages to muddle through in an appropriate manner.” [*sic*]

5. *Party List System:* Van der Waldt and Helmbold (1995:34) insightfully discussed South Africa's electoral system where, rather than put up candidates in every constituency, political parties alternatively submit a list of candidates for the National Assembly. A voter, therefore, does not cast a vote for his or her candidate but in actuality votes for their political party of choice.



6. Public Goods: A public good is a product or service that is relatively difficult for the private sector to produce or provide. The difficulty is exemplified by the un-profitability of the service or good. In other words, it is not profitable for the private sector to provide a public good; it then becomes necessary for government to provide the service or good – e.g., a standing army for national defence. Gardiner and Le Goulven (2002) go beyond the traditional definition of public goods, thinking in global terms to extend the concept to *global public bads*. There is recognition that the spread of communicable diseases (e.g., HIV/AIDS) is the antithesis of a public good. HIV/AIDS may then be considered a *public bad* that cuts across national and international boundaries.

7. Constituents: Citizens expect to be represented in government by a candidate he or she has voted for. The representative subsequently needs continued support by citizens/constituents who elected him or her into office. Earlier, a research issue noted was voters' potential to influence public policy decision-making and the relevance to public administration. McGarvey (2001) recognized that democracy impacts public administration. This is exemplified in, for example, ministers of parliament having to respond to the grievances of their constituents. Indeed, there is an implicit application of the notion of accountability. Moreover, as an elected body parliament itself has oversight capabilities that serve to scrutinize as well as influence the actions of government.

8. Rational Choice: Rational choice [theory] may be used to choose, evaluate or consider multiple potential courses of action. Moreover, it implies the use of reason and knowledge to decide on a course of action. Rational-comprehensive theory (RCT) in public policy analysis serves as a framework for examining the forms of rationality used to make choices regarding courses of action to resolve public problems (Dunn, 1994:275). Some examples



of RCT include, bounded rationality, comprehensive rationality, and disjointed-incremental rationality. Etzioni (1968:254-268), as well, wrote extensively on rationality and control as well.

9. Median Voter Theory: Median voter theory provides a framework for discussing how decisions are made favouring the majority, especially in providing public goods (Rosen, 1999:118-119). The median voter is one of many voters and all share the same preference for a particular public good, or all will favour a particular public policy. A median voter model advances the notion that if the median voter attains more or less of what is desired then anything that affects their assessment of a public policy in-turn affects political outcomes (Congleton, 2002). In this way that the median voter can be a pivotal voter.

10. Distribution of Preferences: A set (or sets) representing all voters' preferences forms a distribution or group of preferences. The median voter's preference is situated in the middle of a distribution of preferences (Rosen, 1999:119). Gul and Pesendorfer (2004) noted that political candidates determine what the distribution of preferences is prior to selecting a particular policy by taking numerous polls. Consequently, the political candidate is more informed than the voter on the overall distribution of preferences. Notably, this is an assumption that may well hold true under federalism and pure constituency based proportional representation elections. However, under a unitary system and in instances where voters vote for a party list, it should not be assumed that candidates recognise the preferences of voters. Candidates are not directly accountable to the electorate but rather to their party. There is, perhaps, little need to be cognizant of voter's preferences.



11. *Cooperative Government:* Chapter 3 of the Constitution of the Republic of South Africa (Act 108 of 1996), requires that spheres of government (National, Provincial and Local Government Municipalities) exercise their powers and perform their functions in a manner that does not encroach on the geographical, functional or institutional integrity of another government's sphere; and no sphere of government should exercise powers or functions except those conferred on them in terms of the Constitution (RSA, Act 108 of 1996). Implicitly, the implication for provincial government is a conflict between national and provincial governments on HIV/AIDS policies. Provincial government is required to co-operate but at what cost?

12. *Intergovernmental Relations (IGR):* IGR encompasses interactions of all types between the three (3) spheres of government. There is interdependency between each sphere's political system. Importantly, fiscal and administrative processes to facilitate sharing tax revenue are important aspects of intergovernmental relations (Mathebula & Malan, 2002:2). Conflict arises, however, in instances of public policy decision making – e.g., whether or not to spend on HIV/AIDS treatment.

13. *Fiscal Relations:* In South Africa, the most important aspect of fiscal relations is sharing of tax revenue – i.e., revenue to be shared amongst the three spheres of government (RSA, Act 97 of 1997). Key to facilitating equitable sharing of revenue is the budget forum chaired by the Minister of Finance. The forum consists of representatives from the three sphere of government and their deliberations culminate with the introduction and passing of the Division of Revenue Act that stipulates revenue allocations.



14. *Subnational Governments:* Subnational governments of South Africa include provincial and local government administrations. Comparatively, South Africa has rationalised the number of subnational local governments down to 284, as compared to a country such as the U.S. (where although there are 50 states in comparison to South Africa's 9 provinces) that has more than 80,000 local governments (Levy and Tapscott, 2001:144-147). Johnson and Minis (n.d.) referred to the inherent contract that exists between citizens and government. That contract entails government performing functions relating to security, providing public services and dealing with the seemingly insurmountable challenges associated with HIV/AIDS. Importantly, the contract becomes primarily operational at the subnational levels of government.

15. *Civil Society:* This is a colloquial term used familiarly in speech to refer to the population of non-governmental organisations, self-organising community organisations such as the Treatment Action Campaign (TAC) that organise based on some common interest, voluntary participation and affiliation that is non-coerced. Importantly, how civil society is defined and viewed is continually subject to changes in local, national and international conditions (Hakkarainen, O., Hisayo, K., Kessey, C.B., Kontinen, T., Kyllonen, T., Rovaniemi, S., & Wamai, R., 2002) – e.g., the role civil society will play in the twenty-first century in influencing public decision making associated with HIV/AIDS.

16. *Voter Collectivism:* Devine (2000) empirically showed that a large number of individuals each and all maximise their utility for some homogeneous good, or choice of a particular policy. Essentially, median voters act collectively. Etzioni (1968:98) described “the collective” by noting that a collective encompasses a broad unit that has the capacity



to act and the unit [collective] has normative bonds that hold it together. Indeed, there are shared values that are evident in their having similar preferences for goods or, say, a particular public policy.

17. *Symbiotic Relationship:* Such a relationship implies that there is a close relationship between two or more dissimilar organisms and both receive an advantage from an association. Of course, in this research this definition extends to there being a relationship between public administration and political science. Notably, the relationship between public administration and political science is manifested in the notion and concept of the state. Since Wilson's (1886) writings, the "politics-administration dichotomy" has all but been rejected. That is, there has since been a rejection of the notion that it is possible to separate the administrative activities of governance from the activities of politics (Spicer, 2001). Thus this dissertation advances the notion that there is a symbiotic relationship between public administration and political science.

18. *Mixed Approach Method:* Tashakkori and Teddlie (1998) pointed out that social and behavioral research revealed that mixed methods are being used extensively to solve research problems. Some would argue that a mixed approach to research is merely a combination of quantitative and qualitative approaches. Yet others would argue that a mixed approach is a truly separate and definitive methodology and that its time has come. Whatever the controversy, a plethora of literature has emerged on mixed approaches to research since the paradigm wars or the 1970s-80s. Notably, a "what works" approach to research can be avoided upon review of the work cited above.



19. *Multivariate Analysis:* This is a statistical technique used to analyze the influence of many independent variables on a dependent variable. Moreover, it is a statistical approach and a branch of applied mathematics that involves the collection and interpretation of quantitative data and the use of probability theory to estimate population parameters. Being a byproduct of regression analysis, Dunn (1994:237) viewed such statistical techniques as being useful to estimate linear relationship between variables. Examination of linear relationships includes correlation analysis used to further interpret the intensity of the relationship between variables. Indeed, an objective of this research is to examine the relationship between spending and citizens exercising their franchise to vote. Can they influence [motivate] government to spend and can they influence policy makers [government] to make a firm commitment to fight the HIV/AIDS epidemic in South Africa?

20. *Proxy:* A proxy [substitute] is used in statistical analysis when reliable data for a variable is not available or when underlying determinants are difficult to quantify. There appears to be little or no literature on the development, use and role of proxies in statistics. Yet, proxies are routinely used to replace variables that defy quantification. Nevertheless, see Revesz and Lattimore (2001) where there is adequate discussion and example of the development and use of proxies in statistical analysis.



**THE EFFECT OF THE VOTING FRANCHISE ON
PUBLIC POLICY DECISION MAKING AND PROVINCIAL GOVERNMENT
SPENDING FOR HIV/AIDS**

ABSTRACT

Government spending is an important component of public finance that enables government to deliver services and implement policies of the executive. This research examines government spending for HIV/AIDS treatment at the provincial sphere of government and queries whether citizens can influence public policy decision-making for HIV/AIDS treatment. The research considers the nature of the state, it being either a unitary system or a federal system (centralised or decentralised). Importantly, the research examines the effect of citizens on public policy decision-making, as they exercise their franchise to vote. Moreover, this dissertation empirically examines how government has spent in response to the HIV/AIDS epidemic and measures any influence voters may have on government spending, with spending giving indication of public policy decision-making by the government of the day. The literature review identifies techniques used by other researchers on the matter and previous research on the relationship between voters and government spending. For example, Husted and Kenny studied voters' potential to influence government spending at the provincial [state] sphere of government. The outcome of their research was inconclusive but at the least suggests those variables that might effect government spending - variables that might be used for this dissertation. For example, institutional and latent groups are identified, to examine voting effects and other influences on policy decisions. The literature review discusses collaborative and voter-collective actions, for explanatory effects on policy decisions as



well. Essentially, variables and specifications for a regression model are suggested to facilitate a test of hypothesis that voters do not have the ability to influence provincial government spending for HIV/AIDS policy. The research design for this dissertation is therefore evaluative and generally measures a programme. Indeed, that programme is one of HIV/AIDS treatment in South Africa. Bivariate and multivariate relationships are determined to begin to answer the research question. Can voters effect public policy decision made on HIV/AIDS treatment? Put yet another way, that question is whether the electorate, as reflected by voter turnout, can influence provincial spending on HIV/AIDS treatment? The hypothesis is: The electorate does not have the potential to influence provincial spending for HIV/AIDS treatment. Spending, or lack thereof, reflects a public policy decision of government. Notably, reference to the government of the day implies the ruling [South] African National Congress (ANC) party. Conclusively, after a number of iterations that involved running several bivariate and multivariate regression models, the outcome was that voters could influence provincial spending for HIV/AIDS treatment. The hypothesis was rejected that the electorate does not have the potential to influence provincial spending and HIV/AIDS.



CHAPTER ONE

PUBLIC POLICY DECISION MAKING AND PROVINCIAL GOVERNMENT SPENDING FOR HIV/AIDS

1.1 INTRODUCTION

South Africa is the only African country to participate by trial and error in the industrial revolution. The trial has been that of colonialism and the error has been that failed experiment called apartheid. For these reasons, South Africa remains quagmired in being underdeveloped. Interestingly, the west's expectations of development eclipses the fact that South Africa has achieved what it has with its hands [figuratively] tied behind its back. The struggle, for example, to govern in an afro-euro centric fashion has undoubtedly affected public policy decisions on HIV/AIDS.

The activity of finance is a generic function of public administration, with government spending or expenditures being a component that is vital to government being able to deliver services and fund the policies of the executive. This research and the discussion that follows examines government spending for HIV/AIDS treatment at the provincial sphere of government and queries whether citizens can influence public policy decision making. The nature of the state, it being either a unitary system or a federal system (centralised or decentralised) are factors to be considered in examining the relationship between citizens and public policy decision making, as they exercise their franchise to vote. The structure of the state effects government spending and the appropriation and subsequent allocation of revenue to subnational governments. Contextually, how



government spends in response to the HIV/AIDS epidemic serves as an opportunity to observe any influence by voters on government spending.

A notion that is increasingly being challenged is that a western style of government should be a template for effective governance and public policy decision-making. Choosing an alternative and adopting a democratic form of government, some developing and emerging nation-states opt for a unitary state [constitution] rather than a federal system of government. Strong (1972:80), for example, considered South Africa to be an extraordinary example of a state that is outwardly federal in appearance but nonetheless unitary in its practices. Characteristically, the unitary state chooses to centralise government activities while the federal state chooses to decentralise activities. A federal system of government may devolve decision-making associated with government spending, for example, to its subnational states. In the case of South Africa, however, what is most interesting is that the desire to maintain the unitary state has not less been diminished with the dismantling of apartheid and the succession of the African National Congress (ANC) to become the party of the day.

With emphasis on South Africa where the popular western style of government has been rejected and the unitary state has been upheld, what are the underlying implications for an electorate that since 1994 has increasingly exercised its franchise to vote? Moreover, what are the implications for provinces, their budgets and government expenditures? How have provincial government expenditures been impacted by a unitary national [ANC] government where political representatives are elected by way of the party list system? Has the electorate been able to influence provincial spending on HIV/AIDS treatment, with the state being markedly unitary?



1. 2 PUBLIC POLICY DECISION MAKING

Petrus Brynard contributed a chapter in Cloete & Wissink (2000:151) that further fuels the debate as to whether the determination of policy and public policy decision-making are synonymous. Simply put, public policy decision-making may be described as a choice made between alternatives at a given time. Examining the relationship between government spending and the ultimate policy decision made after choosing an alternative is but one of the objectives of this research. That there is some relationship between government spending and choosing a policy alternative was recognised by Buchanan and Pilgrim (2004), who implied that policy choices [decisions] revolve around the spending of public money. In other words, policy decisions are not made in a vacuum and the appropriation, allocation and the willingness to spend money impacts the policy alternative chosen. Notably, the policy alternative's potential to be successfully implemented is affected by government's willingness to spend.

Case-in-point: A response to the HIV/AIDS crisis in South Africa reflects efforts to choose from many policy alternatives that have been constrained by government's willingness to spend money to implement any one alternative. Notably, Garbus (2002:81) characterised the under-spending of AIDS funds in the early days of the ANC Administration. Whether there was reluctance to spend (considering that there was a pattern of under-spending across all social programmes) or whether the administration was at that time nurturing the belief that indeed HIV did not cause AIDS is debatable. At one stage, however, President Mandela's successor Thabo Mbeki seemed to articulate such a belief and it was not until April 2002 that a policy statement was made reaffirming that HIV indeed causes AIDS.



In this work, it would be prudent to examine provincial government spending targeted at HIV/AIDS and the efficacy of such spending to combat the pandemic in South Africa. How effective and how efficient has spending been in implementing any policy alternative to stem the tide of HIV/AIDS infections in South Africa? Has HIV/AIDS declined or increased with government spending and the at long last decision to take a stance on the destructive nature of HIV/AIDS to the national fabric?

1.3 THE FRANCHISE TO VOTE AND PUBLIC POLICY DECISION MAKING

The franchise to vote entails civic participation by citizens who actively choose their desired leaders [elites] to serve as representatives in the executive administration of government. Recognising that citizens indeed actively participate and have the “opportunity to choose” gives cause to call any particular nation-state a democracy. While the limits of any democracy may be stretched over a spectrum ranging from the unitary state through to the federal state – i.e., ranging from being centralised through to being decentralised – the absence of active participation and the right to choose representatives gives cause to characterise a nation- state as being totalitarian or a dictatorship.

Interestingly, democracies can thrive quite well in both the unitary and the federal state. What the two contrasting systems have in common is an electoral system where voting procedures impact on decisions regarding public expenditures (Rosen, 1999:133). Implicitly, a decision by voters on public spending results from exercising their franchise to vote. Voting and government spending are further discussed by Lindahl (1958), who illustrated that the outcome of citizens exercising their franchise to vote results in an efficient quantity of [public] goods being provided; voters’ preferences revealed by way



of voting leads to an equilibrium being struck. Indeed, Lindahl's illustration [model] provides a framework for looking at voters' preferences for public goods. Each voter has some personal price they are willing to pay per unit of public good. Once voting has been concluded, the level of public good to be provided will be at equilibrium. There, however, is an assumption that voters vote sincerely, precluding strategic behaviour to force another voter to an undesired level of allocation.

A conclusion can then be drawn that, at the least, voters wield some power by voting and can make their preferences known. Barua, Chakravarty and Roy (2001) suggested that voting power should reflect the voters' potential to influence public policy decision-making. Consequently, the rule of the majority should be decisive but the decisiveness of the majority [electorate] is questionable in the unitary South African state where voters vote for a list of party elites rather than vote for any one political representative. It is therefore highly questionable as to the degree of power and influence the South African electorate has on public policy decision-making. Two questions are subsequently raised. How do citizens elect representatives and how do those elected representatives make decisions on behalf of their constituents?

Firstly, rational choice theory offers a point of departure from which to analyse citizens as they exercise their franchise to vote. Applied across multiple disciplines, rational choice recognises that individuals are motivated by wants and goals that reflect their preferences. Individuals [voters] (1) act within constraints and (2) act based on the best information they have, relative to the conditions under which they are acting (Scott, 2000:2). In public policy, Dye (2002:16) described rationalism as being the achievement of maximum gain. Applying rational choice theory to the electorate, voters



choose the optimal political candidate, anticipating that gains will exceed costs. Notably, Downs (1957) advanced *a rational voter hypothesis* where the voter measures the potential gain from voting based on comparing two candidates. The gain from an election (i.e., the voter's gain) equals the difference between two candidates – i.e., a comparative gain (Gunning, 2003). The gain to the voter is the difference of the tax costs of, say, the two policies proposed by the prospective campaigning politicians. In the case of campaigner one (1), the benefits of a proposed policy should exceed the costs and in the case of campaigner two (2), likewise the benefits of a proposed policy should exceed the costs. Comparatively, the differences of the two calculated cost-benefits equal the voter's gain.

Secondly, political representatives theoretically make decisions on behalf of their constituents by adopting the preferred policies of the median voter (Rosen, 1999:124). The politician will make decisions that appeal to voters whose preferences are in the middle of a distribution of preferences. Notably, in an electoral system where two parties dominate the political landscape, differentiating between the two opposing candidates is difficult due to their both occupying policy positions that are near the centre. No matter if the politician is ANC or IFP, Democrat or Republican, each political candidate places his or her self as close as possible to the median voter. Consequently, it is difficult to differentiate one policy position from another. With reference to South Africa, it might be construed that the ruling party has forced its major opposition [the IFP] to the middle of the policy preference distribution, upon mandating cooperative government through the Constitution. (RSA, Act 108 of 1996). Notably, although Chapter 3 of the Constitution (RSA, 1996) expressly refers to cooperation with regard to the three (3) spheres of government and



intergovernmental relations, license is taken to extend such cooperation to the way, say, the ANC and the IFP engage each other in the administration of the government. Consider, for example, Mongosuthu Buthelezi's (IFP) appointment as Minister of Home Affairs in the predominate ANC cabinet. Moreover, consider the need for cooperative government between the national sphere of government dominated by the ANC and the province of KwaZulu-Natal which is dominated by the IFP. Intragovernmental relations, therefore, should subscribe to the same aims of cooperative intergovernmental relations.

Rational choice theory is not only applicable to citizens, as they exercise their franchise to vote. Rational choice theory can be applied to political representatives and policy makers who may be characterised as muddled in their endeavours to act rationally. Indeed, politicians are vote maximisers who weigh the costs and benefits of making decisions along the line of the median voter. Rational choice theory, however, is not without its critics. In the real world, politicians are most likely to make policy decisions in a muddled manner. Lindblom (1959) explained that decision-making is routinely formalised as a means to an end. Means are contemplated for evaluation and are chosen recognising ends that are selected independently of the choice of the means. The ends are even chosen before the means. In this way, politicians and policy makers "muddle" through the decision making process. Muddling, however, can be considered to be rational if the specified objective is achieved. A clear decision need not have been made; the achievement of the objective takes precedence. Arguably, what (approach, decision, choice, etc.) is really rational?

Arrow (1986) debunks rationality noting, "when plausible conditions cease to hold, rational assumptions become strained and possibly even contradictory." [*sic*] Rationality gathers its very meaning from the context under which, say, rational decisions are made. In other



words, the context, the environment and surrounding factors dictate what is rational and what is not rational. Thus it would be misleading to think that on each and every occasion voters vote and exercise their franchise to vote rationally and that public policy decision makers, politicians, political candidates and the like act rationally – especially when all are striving to maximise their own self-interests. The problem then is that of achieving agreement or consensus on any one issue, let alone coming to a decision on a plan of action.

1.4 PROVINCIAL SPENDING AND PUBLIC POLICY DECISION MAKING

Any discussion of provincial spending in South Africa is invariably rooted in intergovernmental fiscal relations, while recognising to what degree subnational governments can make decisions associated with fiscal matters (Levy and Tapscott, 2001:127-131). Indeed, if there is any one area where the unitary state is most evident it is in allocating and sharing tax revenues. Characteristically, provincial spending norms and standards are a reflection of national priorities. Whether this is good or bad is rhetorical but what is debatable is whether provinces have fully exercised their taxing powers and whether they have the political will to make decisions on policies over which they indeed have financial control. Notably, provinces generate a mere 3-5% of revenue from taxes, levies and duties on their own to run provincial administrations.

Due to vertical fiscal imbalances, mechanisms were put into place in South Africa to facilitate equitable revenue sharing amongst all nine provinces. Vertical fiscal imbalance refers to the disparate relationship between the revenue-raising capabilities of the provinces in South Africa and their mandate to spend on policies, directives and initiatives that emanate from national government. Referred to specifically as vertical



and horizontal division of revenues, these mechanisms entail transfers from national government to provincial governments by way of equitable share grants and conditional grants; such transfers account for close to 97% of provincial revenues. Vertical division of revenues is meant to match the allocation of funds with the functional responsibilities of provinces. Horizontal division of revenues is based on demographics and a formula administered by the Department of Finance.

At first glance, it would appear that provincial governments are significantly dependent on national government to finance the operation of provincial administrations. This is true to a great extent, as revenue sharing thinly veils national government's efforts to maintain control of provincial governments and provincial executives [Premiers]. Indeed, the budget and timing of allocations can be mechanisms for control. In reaction, Mtshali (2002) referred to his provincial [KwaZulu Natal] government's goal to optimally use its own resources to fight HIV/AIDS. The impetus for Mtshali's revolt was national government's continued limited distribution of Nevirapine through a few pilot sites in KwaZulu-Natal. This was a policy decision vigorously contested by Premier Mtshali. The absence of a national mother to child treatment (MTCT) programme caused Premier Mtshali and other Premiers to challenge the unitary state, centralisation, and more specifically, the Minister of Health. Consequently, alternative funding sources (from the government of Denmark) were sought to finance subnational/provincial governments' implementation of policy initiatives contrary to national government policies. A showdown between national government, provincial government and civil society (e.g., the Treatment Action Campaign) was inevitable.



1.5 RESEARCH PROBLEM AND HYPOTHESIS

Since the development of the HIV/AIDS Strategic Plan (DOH, 2000:9), national government has struggled to provide an adequate response to the epidemic. In 2000 the strategic plan noted that a detailed description of a response was beyond the scope of the plan itself. Consequently, stalled decision-making at the national level filtered down to the provincial sphere of government. Premiers then found it necessary to take matters into their own hands. The electorate and civil society had become dissatisfied with government's inexpedient response as well. An expected and desired response was that national government should fund the distribution of Nevirapine to pregnant HIV positive women and that government should cease to deny that HIV causes AIDS.

The primary research question for this dissertation is: *To what extent has the electorate [citizen-voters] been able to influence public policy decision making, as reflected in provincial spending for HIV/AIDS treatment?* Answering this question will provide scientific empirical support, proving or disproving that voter collectivism and activism can motivate policy makers to make policy decisions that maximise the interest of citizens, as opposed to maximising the self interest of the political representative/policy maker. In South Africa, do political representatives make public policy decisions in line with median voter preferences? Based on the stated research question, the research hypothesis offered is: *The electorate [voters] cannot significantly influence public policy decision making, as reflected in provincial government spending for HIV/AIDS treatment.* The implication is that the electorate does not have the ability to influence public policy decision-making.



1.6 RESEARCH ISSUES

With regard to this dissertation, two issues should be highlighted in anticipation of critical questions. The first issue encompasses the relevance of this research to the field of public administration. The second issue recognises what, henceforth, will be termed as “the symbiotic relationship of public administration and political science.”

What does the understanding of voters’ potential to influence public policy decision making have to do with public administration? The first step towards answering that question begins by identifying [determining] public policy as being a directive function of public administration (Cloete, 1998: 214). Policy determination involves investigating an issue and deciding whether or not to deal with that issue through the formulation of a policy (Du Toit, et al. 2001:13). Policy analysts investigate and policy makers and political representatives are left to advocate and implement a policy alternative. In a democracy, the political representative gets his or her mandate to act on a policy issue from their constituents. The linking pin between the electorate/voters and policy makers/political representatives is the mechanism of accountability. Public administration entails policy making by those who are accountable to the electorate – whether elected directly or indirectly, say, by way of a party list system. Moreover, the government or the chief executive’s administration (engaging in the functions of public administration) attains power and position by acquiring the popular vote. Clearly, there is some relationship between voting and public administration.

What then is the relationship between public administration and politics? Is there a symbiotic relationship between public administration and political science? Are they connected or are they two distinct disciplines? A critical issue associated with this work,



therefore, is that as this paper addresses the research question and proves or disproves the hypothesis, it may appear that at times the discussion leans towards political science, when the discussion should be of public administration. Can one, therefore, write about public administration without recognising any link to political science?

Dye (2002:3) discussed the many aspects of politics, to include government institutions, federalism, separation of powers, judicial review, *etc.* The insightful statement that “political science is also the study of public policy” augmented that discussion further. In the timeless work *The Study of Administration*, Wilson (1886) established that [public] administration is a fruit of the science of politics. Implicitly, it had taken a little more than 2000 years to begin to study government and recognise government for what it does. Indeed, there had always been recognition of “government” and its close association with politics; but systematic writing and study of administration was a relatively new (c. 1900) pursuit. Before 1900, the emphasis was on studying and criticising the constitution of government, the nature of the state and the sovereignty of the executive – i.e., curricula for political science. Subsequently, the curriculum came to include the study of *what governments do and the consequences of government action*. In due course, public administration would break away to become a separate and distinct discipline. And rightly so that this should occur as Wilson [online] wrote:

“It [public administration] is removed from the hurry and strife of politics. It is part of political life as the methods of counting house are a part of life of the machinery, as machinery is part of the manufactured product. Through its greater principles it is directly connected with the lasting maxims of political wisdom and the permanent truths of political wisdom.” [*sic*]



Conclusively, public administration should be separate (but not separated) from political science, so as to be separate from all that characterises politics – negotiation, compromise, power, ambition and political office. Nevertheless, that which is good or bad about politics impacts public administration – what government will or will not do (Dye, 2000:1). Indeed, it is difficult to discuss public administration without drawing upon political science, as the former arose from the latter.

1.7 RESEARCH METHODOLOGY: OVERVIEW

A mixed research [approach] methodology will be used to explain the research phenomena, collect data, analyse data and report the findings. The research mix will be essentially quantitative, with bivariate and multiple regression being used to perform multivariate analysis. The dependent variable will be provincial government spending for HIV/AIDS treatment, as such spending reflects a public policy decision to address the epidemic.

Numerous independent variables will be used to explain the variation in public decision making encompassing HIV/AIDS policy. The primary independent variable will represent participants in the voting process and their potential to influence government spending. Those participants (the electorate) can be characterised by way of unorganised or organised voter groups. Unorganised voters may be described as the diffuse population of voters who can be either latent or active prior to exercising their franchise to vote. Such voters may appear to be apathetic, an unorganised collective body, or paradoxically mobilised by way of party affiliation and commitment to political ideology – e.g., staunch ANC or IFP party members. A proxy for organised voters will be used in the form of, say, a significant civil society organisation that has strived to influence and



shape public policy decision-making - .e.g., the Treatment Action Campaign (TAC). On the matter of a proxy for organised voters, Falaschetti (2003:94) recognized that voter turnout might have insignificant explanatory capability. Rather, relevant organized self-interest groups may significantly explain any variation in public policy decision-making. Moreover, electoral constituencies' "capacity" to produce support and not the actual support wielded may actually impact public policy decision-making. Notably, this is discussed further in the literature review.

A number of independent variables will be introduced to account for the variety of possible influences on the public policy decision to spend on HIV/AIDS treatment. For example, independent variables of education and income may be found to influence a policy decision to spend provincial money to roll out a provincial treatment programme. Arraying the variables in a multivariate table will facilitate observing the effects other variables have on a bivariate relationship.

The mixed approach is further exemplified by qualitative, narrative and historical paradigms employed to put the research into perspective. In other words, the [research] objective is to answer the question of whether voters can influence provincial government spending, with reference to the specific public policy decision to be made associated with spending for HIV/AIDS. Historically: What was the state of affairs? What is the state of affairs and what are the prospects for the future?

Finally and with regard to research methodology, secondary data from the likes of the Independent Electoral Commission and Statistics South Africa will be sorted and used as



input for statistical data analysis. The following section (2) will provide a more in depth discussion of the research methodology and associated variables.

1.8 LIMITATIONS AND DELIMITATION

The objective of this study is to determine to what extent can the electorate [voters] influence public policy decision-making. A limitation of this study is that the data that will comprise the key variables reflecting voter behaviour and data for provincial government spending (i.e., the data) will not be collected directly by the researcher. In other words, existing [secondary] databases will be used to build or establish the variables for a regression model. Due to time, money and the size of the population, it would be near impossible for the researcher to collect the data to establish the variables.

In some instances, using existing databases and secondary sources of data would be cause for concern. However, the integrity of the National Treasury from which expenditure data will be sourced and the integrity of the Independent Electoral Commission (IEC), assumingly, will minimise concern for the integrity of the data to be used. Indeed, such organisations are tasked to collect and maintain data pertaining to their respective mandates and it may be expected that they would have the expertise to collect raw data relating to their respective functions and activities. There, however, is recognition that even in the best instances (Statistics South Africa, 2005), organisations do err in collecting vital data and statistics. In this research, caution will be taken in using “borrowed” data. In support of this cautious approach, Schoonakker (2005) in “New Row Over AIDS Statistic” expressed concern over the accuracy on reported mortality rates associated with the HIV/AIDS epidemic.



Nevertheless, this research is delimited (boundaries set) by the population of voters and individuals who benefit from government spending. Thus the research fails to consider those who do not exercise their franchise to vote, nor does the research consider individuals who, for example, fall outside the tax net and enjoy benefits as “free riders” of public goods and services. The question of how, or even whether such individuals influence public policy decision making is not addressed in this research but is a question that might be considered in the future. The objective here is to measure the influence of voters, recognising those who are the targeted recipients of government spending – e.g., for education, social services, or HIV/AIDS treatment.

1.9 MOTIVATION FOR RESEARCH

The motivation for this research arose from a keen interest in how government finances its activities. Bonser, McGregor & Clinton (2000), for example, showed that there is merit in examining how the state is financed. Additionally, there was interest in both the revenue and expenditure sides of government budgeting. Limiting the research interest, a conscious decision was made to concentrate on the expenditure side of the budget. The research interest was further limited upon reading Husted and Kenny (1997) who examined the expansion of the voting franchise and its effect on state and local government spending – to be discussed in the literature review. Consequently, there was a desire to build on their work and limit the scope of the research to one aspect of government spending – i.e., HIV/AIDS. In this research there is regard for government spending for HIV/AIDS treatment being a public policy decision and the potential for the electorate to influence any decision on that specific aspect of government spending.



1. 10 CONTRIBUTION

There are two contributions to be made in pursuing this research. The first contribution entails laying a foundation for the examination and study of constituency preferences. The second contribution entails bringing validity to the question pertaining to constituents [voters] and their propensity to influence public policy decision-making.

Firstly, Levendusky and Pope (2003) highlighted that much attention is paid to measuring legislator and electoral challenger preferences; measures of constituency preference are undeveloped. Their commentary was made with emphasis on politics but there is a belief that their observation can be extended, say, to measuring users of public services preferences within the context of public administration. A contribution towards this end can be made through this dissertation. Additionally, as will be seen in the literature review, others have embarked on studying the potential of voters [citizens] to influence public policy decision-making. This research will add to that body of literature and discourse.

Secondly, when the question is put forth as to whether citizens [voters] can influence public policy decision-making (especially with recent regard for their potential to influence HIV/AIDS policy), responses range from:

1. Yes, considering that the Mbeki administration has finally recognised that HIV causes AIDS.
2. No, citizens have had little or no influence. A turnaround has only occurred through the activism of the TAC.
3. No, and such a question is of little consequence. Citizens are apathetic, ill informed and uncaring. The government of the day will do what it wants or, at least, what it feels is best for people.



The contribution to be made is that validity is given to putting forth the question of voter influence on public policy decision making, by examining of factors that influence public policy decision-making. Can citizens influence public policy decision-making? Do latent groups such as the TAC explain the variation in public policy decision-making?

1. 11 OUTLINE OF DISSERTATION

Simply, this dissertation will consist of the following chapters:

- I. Introduction:** The broad field of study was discussed and relevant background information was provided to set the stage for the dissertation and subsequent data analysis. The initial broad approach included a discussion of public policy decision-making, through to the relationship between political science and public administration. Importantly the research is framed within the context of HIV/AIDS Treatment.
- II. Literature Review:** This chapter will establish the theoretical foundation for the dissertation. Similar research measuring citizen's influence upon public policy decision-making will be discussed. Approaches to measuring and analysing voter preferences will be discussed and subsequently shape the next chapter encompassing research methodology.
- III. Research Methodology:** This chapter will explain how the research will be conducted, how data will be collected and the validity of data. Moreover, there is a discussion of the sample technique and data analysis to follow.
- IV. Case Study:** This chapter will discuss in depth the context of the research. A case study approach will involve looking at public policy decision making regarding HIV/AIDS – past, present and future prospects. The aim is to put the research methodology into context, in preparation for presenting the findings in the following data analysis section. The problem will be highlighted from a micro and macro perspective. Causes for the problem, with reference to public policy decision-making will be discussed. There will be a discussion of systems affected – e.g., structural systems and public



management systems. Potential alternatives and recommendations will be briefly discussed, leading into the final chapter.

V. Analysis: This chapter will discuss findings resulting from using multiple regression and correlation analysis. Again, the calculated output will reflect HIV/AIDS treatment and citizens' potential to influence public policy decision making associated with implementing treatment programmes.

VI. Conclusion / Recommendations: Conclusions substantiated by the research will be discussed. Finally, some practical suggestions will be made and potential uses for the research methodology and output will be recommended. Hopefully this dissertation will inspire follow-on research on public policy decision-making and the influence of voters, citizens and constituents.

1. 12 CONCLUSION

It is tempting to assume that in a country where there is direct proportional representation, as in the case of a federal state, voters will have the potential to influence public policy decision making. Such an assumption warrants investigation and study. In the case of the unitary state, especially where a party list electoral system exists, it most definitely should not be assumed that voters can, or cannot influence public policy decision-making. Again, investigation and study is recommended. Such a recommendation is supported by the perplexity resulting from, for example, government's slow response to spending to provide HIV/AIDS treatment - i.e., to spend on all health matters related to the epidemic. Assumably, citizens [voters] would want to influence public policy decision making on this matter. Likewise, civil society groups, more specifically, the Treatment Action Campaign (TAC) and other stakeholders would want to influence public policy decision making on HIV/AIDS treatment. This research will examine whether, indeed, voters or other latent



groups such as the TAC influence public policy decision-making and consequently motivate government through the "vote" to be responsive to the constituents.



CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

As this literature begins, a critical question is put forth: What is the relationship between public administration and this dissertation? Public administration encompasses public policy decisions. In the previous section 1.2 of this work there was reference to Dye (2002:16) and the notion of rationalism. Public policy decisions can be examined, for example, using a rational model to determine whether social gain has been maximised. This dissertation therefore strives to rationalise public policy decision-making as it relates to responding to the HIV/AIDS crisis in South Africa. The response of the government of the day has been puzzling on the matter of HIV/AIDS treatment, and this dissertation can serve to clarify the cautious approach taken towards making a policy decision on HIV/AIDS treatment. Conversely, this dissertation can serve to support those latent groups that strive to motivate the executive to be more expedient in responding to the HIV/AIDS crisis. All in all, this dissertation illustrates how public policy decisions (including the policy decision to do nothing) can be subjected to scientific enquiry. Indeed, this should be construed as a contribution to the discipline of public administration – again, subjecting public policy on the matter of HIV/AIDS treatment to rigorous scientific enquiry.

Having said that, this literature review serves to develop a research methodology to determine any explanatory effects on the proposed dependent variable of government spending at the provincial sphere of government on the policy issue relating to



HIV/AIDS treatment. Husted and Kenny (1997) motivate researchers to ponder the relationship of poor pivotal voters' effect on government spending. Their research gives cause to examine the relationship of voters to government at the mid-level (state/provincial) sphere of government. Two independent variables (INCOME and WELFARE) featured prominently and were segmented and differentiated to account for any significant effects on per capita government spending. Among other variables, *voter turnout* was regressed on the dependent variable and interestingly recurs in the literature (Fleck, 1999 on voter effects on redistributive policy) as an important variable to be included in formulating a regression specification. Falaschetti (2003) desired to look beyond voter turnout; indeed, there was a belief that other [latent] forces were at work and had explanatory effects on government spending. In a way, voter assistance as an example of latent forces, facilitate the electorate and move it towards effectively functioning as a collective to impact policy decisions – e.g., telecommunications policy and the regulation of service providers. Hamilton (1993) drives the literature towards examining and emphatically recognising collective action. Indeed, Hamilton leads to a conclusion that *voter turnout* can and should offer some explanatory effect on policy decisions. At best VOTER TURNOUT should be a variable in any regression equation formulated to explain government spending. Conclusively, the literature gives cause to include other variables such as INCOME, EDUCATION, LATENT FORCES that facilitate the electorate to function as a collective; the variables serve to test for robustness of the regression equation as well. As an example, provincial control by the party of the day (the ANC) should have a positive coefficient, thus moving in a positive direction relative to government spending. Indeed, these are the contributions of this



literature review and these contributions shape the following discussion on the research methodology.

This literature review reviews previous research on the relationship between voters and government spending. Government spending has been construed to indicate the size of government and thereby a reflection of the size of the public sector. For that matter, spending on any number of policy issues reflects government decision-making and prioritisation of a portfolio of policies. Husted and Kenny's contribution to the literature gave motivation to consider voters' potential to influence government spending at the provincial sphere of government. The outcome of their research was inconclusive but at the least gave cause to consider those variables that might effect government spending. Fleck's contribution identifies voter turnout as an essential variable in studying voter-government spending relationships and the size of government. Falaschetti, however, suggested that other forces were at work influencing and enabling voters to act collectively. Indeed, there was recognition of institutional and latent groups that, by effecting voters, attempt to influence policy decisions. Hamilton's contribution gave further cause to emphasise collaborative and voter-collective actions, in search of explanatory effects on policy decisions. All in all, their contributions suggest variables and potential specifications for the regression to be used in this dissertation. Importantly, their work gives impetus to the research methodology and the study of voters' potential to influence government spending and public policy decisions relating to HIV/AIDS treatment at the provincial level in South Africa.



When measuring the size of government and for that matter the size of the public sector, an assumption is made that size and growth can be measured by government spending. Alternatively, the size of government and the public sector might be measured by the number of individuals (government employees) employed by the government in the public sector. Additionally, estimates of national expenditure could be examined to gauge the size of government (RSA, 2005). With reference to the provincial sphere of government, one could look to provincial budget [financial] statements to measure the size of a provincial government (KZN, 2005).

One theory offered to explain the growth of government and therefore the public sector is Wagner's Law of Increasing Public Utility that states that government has a natural tendency to grow larger (Buchanan, 1980:64-65) and the demand for government services subsequently leads to further expansion of the public sector. Moreover, increasing personal incomes fuel ever increasing and greater demand for those government services valued most by voters.

Indeed, there are many explanations and several models that serve to explain the growth of the public sector (Peacock & Wiseman, 1961; Schmidt in Taylor, 1983; Lubar, 1980; Rosen, 1999; Hamlin in Gemmell, 1993; Buchanan, 1980). This list of theorist has not been exhausted. Of all the theories explaining growth in the size of government, Husted and Kenny's (1997) study on growth resulting from the expansion of the voting franchise is most intriguing.



2.2 THE VOTING FRANCHISE AND GOVERNMENT SPENDING

In Husted and Kenny's study, there is an examination of state [provincial] and local government spending and effects resulting from the elimination of a poll tax and literacy tests that served as barriers to [black] citizens who desired to exercise their franchise to vote from 1958 to 1988 in the United States. In due course, the study focused on poor pivotal voters who turned out to vote in large numbers once barriers to voting were removed. Naturally, an increase in government spending was expected, with governments in turn being responsive to the electorate. Extending Husted and Kenny's research to be an examination of change in public policy making, could governments' responsiveness be attributed to electoral constituencies – i.e., expansion of the voting franchise (Falaschetti, 2003)?

Husted and Kenny analysed the relationship between the pivotal voter and the size of government spending by using a sample of biennial data for the years 1950 through to 1988. Such data was collected from 46 U.S. states [provinces] to estimate voter-spending relationships. Essentially, Husted and Kenny tested the theory that (with greater voter participation by poor pivotal voters) government expenditures of a redistributive nature would increase as a result of expanding the voting franchise. Voters would be considered to be pivotal in the sense that the once disenfranchised voter, as a collective, would have the power to influence electoral outcomes and subsequent policy decisions.

A conflict between income and substitution effects was evident in their research. While an effect on redistributive expenditures was expected, there was uncertainty as to whether expanding the voting franchise would indeed have an effect on non-redistributive government expenditures. An income effect was explained to be a change in pivotal



voter consumption resulting from an increase in income, due to those poor pivotal voters being subsidised by more affluent taxpaying voters. A substitution effect was explained as poorer pivotal voters substituting away from private services and opting for government services because the cost of government services, due to subsidisation, becoming lower in cost. A conflict between these two effects raised the question: can an increase in government spending be the result of an increase in personal income or the voters' greater accessibility to government services with their substituting away from private services (Rosen, 1999:292)?

Consequently, Husted and Kenny found it necessary to differentiate between government expenditures of a redistributive nature – generally welfare expenditures, for example, and specifically old age related expenditures – and expenditures of a non-redistributive nature. Notably, while there are indications of what constitutes expenditures of a redistributive nature, there is no definitive statement or listing of those expenditures that would be considered to be of a non-redistributive nature. There, however, is indication that non-redistributive expenditures are of a non-welfare nature. The variable “WELFARE” was created along with an additional welfare variable being constructed by placing welfare over general expenditures for greater differentiation in welfare spending. Consequently, there were three expenditure related variables – namely, WELFARE, WELFARE/GENERAL and NONWELFARE.

To capture any income effect on government spending, Husted and Kenny included variables indicating real per capita government spending for GOVERNMENT GRANTS (e.g., social security income payments to the disabled) and real per capita PERSONAL INCOME. Any income effect was further identified by the creation of a variable that



measured the number of potential welfare recipients (realised from census data reflecting the income of families considered to be poor or at the poverty level). Dubbed INCOME SPREAD, this variable represented the difference between first and third quartile income data gathered during a national census. Other variables created reflected a state's [province's] population, the percent of the population living in metropolitan areas, the political party in control, a poll tax and literacy test. Examples of those variables include INCOME SPREAD, PERCENT BLACK, PERCENT ELDERLY, CONTROL BY DEMOCRATS, POLL TAX and LITERACY TEST.

Finally, due to the elimination of poll taxes and literacy tests, it was necessary to measure the direct impact of voter income, as there was evidence that the removal of voting barriers contributed to an increase in personal income. Thus the variable $INCOME_{Voter} / INCOME_{POP}$ was created to represent the income of those who indeed vote – i.e., created relative to the general population.

In the development of regression models, WELFARE, WELFARE/GENERAL and NONWELFARE each served as dependent variables, with four linear least squares regressions being estimated to measure redistributive state [provincial] spending. Additionally, another four regressions were estimated for state and local government spending, of which two were log-log models estimated, assumingly, as a preventive measure in the event that there was any violation of assumptions associated with the regression models. Those assumptions were stochasticity, constant variance, randomness, sample dispersion and normal distribution of data (Roufalgas, n.d., chapter 3 notes). In other words, there was a decision to choose an alternative functional form by using log-log specifications (for $INCOME_{Voter} / INCOME_{POP}$), with the objective of determining



any income effect on state and local government spending (Roufalgas, n.d., Chapter 6 notes on choosing a functional form; Norusis, 1982:108).

Before going further it is necessary to comment on the variable CONTROL BY DEMOCRATS. Essentially, this variable measured the political party effects upon government spending. An entry of one (1) indicated that (for a particular state/province) the legislature and the executive were of the same political party. An entry of negative one (-1) indicated control by the opposing Republican Party. An entry of zero would indicate a split in control between the legislature and the executive. Note that political party effects on government spending may also be construed to be party ideological effects on government spending.

Indirectly, income effect(s) were measured by testing for party effects, as there is a tendency for Democrats to represent the lower end of the income distributions and Republicans to represent the upper end of the income distribution. Theoretically, the coefficient for CONTROL BY DEMOCRATS should have been positive with spending rising as income falls – considering Democrats supporting policies and programmes favouring the poor. Later in this dissertation the focus will be on the ANC and the IFP, as distinct political ideologies are embodied in these two South African political parties.

Importantly, Husted and Kenny used the statistical output to test several models employed to explain growth in government spending. The first model tested was the *Pure Redistribution Model* that states that individuals have different human capital. Consequently, individuals receive a lump sum payment that is financed by taxes proportional to income. An increase in tax rates motivates individuals to work less. Thus



there is a particular rate that maximises tax [revenue] intake and the lump sum payment – i.e., equilibrium. Those with the least human [tax] revenue opt for a lump sum payment (Husted and Kenny, 1997:57).

A second model tested was the *Social Insurance Model (SIM)* or altruistic model that states that median voters who are not welfare recipients are supportive of government spending targeted towards, say, the poor and disadvantaged. An increase in the income of these altruistic median voters leads to an increase in redistributive government expenditures. Conversely, a decrease in the altruistic median voters' income results in lower redistributive government spending.

Other models tested included the *Special Interest Group Model* and the *Government Services Model* (Husted & Kenny, 1997:58-59). The implication of these models (except for the SIM model) is that as there are more poor decisive voters and as their income decreases, there is an increase in redistributive spending. In the case of the [pure] altruistic SIM model, when there is a majority of poor decisive median voters, redistributive expenditures will be minimal – i.e. in the absence of non-welfare (well-off) median voters.

With a view towards confirming or refuting any one model, negative coefficients were estimated for the variables $\text{INCOME}_{\text{voter}} / \text{INCOME}_{\text{POP}}$ and POLL TAX, subsequently confirming the pure redistribution model, the social insurance and special interest group models. Characteristically, those independent variables were included in three (3) separate regressions where the dependent variables were WELFARE, WELFARE/GENERAL and NONWELFARE spending (Husted & Kenny, 1997:71).



Negative coefficients, however, serve to refute the altruistic model, as one would expect a positive coefficient indicating a positive directional movement of welfare spending relative to increasing income. At best, government expenditures increase clearly as more poor decisive voters are added to the voter rolls. Still, the conflict between substitution and income effects preclude a firm conclusion that additional voters increase government spending.

As the *Government Services Model* recognises that tax revenue serve to finance the level of government services provided and subsequent spending, government spending is indeed constrained by total tax revenue intake. The government's budget is maximised where total expenditures equals total tax revenue. A key question is, as it relates to income tax revenue and the price of governments services: is the level of government services preferred by poor citizens greater than the level of government services preferred by more affluent citizens? An assumption is made that as more citizens vote, more specifically those voters coming from the lower income distribution, there is greater spending on government services only if the price elasticity of government services exceeds the income elasticity of government services. This assumption, however, does not hold true when estimates are calculated. In this instance, the income effect surpasses the substitution effect and poor median voters have a tendency to use less government services. For this reason there is doubt as to whether expanding the voting franchise substantially explains growth in the size of government (Husted & Kenny 1997:55).

Notably, the government services model, when tested, fails to explain growth in the size of government. This is due to the changing identity of the decisive voter. In one instance the decisive median voter is the richer affluent citizen who altruistically subsidises poorer



voters [community members]. But when the decisive voter shifts to include poor newly enfranchised voters, as seen in the variable CONTROL BY DEMOCRATICS (represented by either 1 or -1, with Democrats representing the poor median voters and Republicans representing the more affluent voters), the coefficients for democratic control were found to be so minimal (less the one tenth of 1%) that it is concluded that a shift in the pivotal voter has no effect on non-welfare spending and inconclusively effects welfare spending. Enfranchising the poor to vote results in an increase in welfare spending but with such spending being only 15% of a state's [province's] budget, welfare spending and thus expansion of the voting franchise can not (at least in the U.S. experience) account for an increase in the size of government spending, expenditures, nor the size of government. Thus, in the application of Husted and Kenny's work towards developing the research methodology for this research dissertation, the RSA experience at the provincial level (as it relates to the percentage of the budget spent on social welfare spending) will be a crucial factor in examining the effect of the voting franchise on government spending and subsequent public policy making relative to HIV/AIDS treatment.

2.3 DISTRIBUTIVE POLICY AND VOTER TURNOUT

Where Husted and Kenny attempted to identify [any] voter effects on government [welfare] spending, Fleck (1999) took a different approach by examining voter effects on redistributive policy. In Fleck's work, the hypothesis was tested that high regional voter turnout leads to increased allocation of funds (government spending) for social welfare programmes, as elected politicians fulfil campaign promises made during the process of getting elected. By voting, can citizens influence policy makers to implement favourable



distributive policies – especially in the instance when the campaigning politician is seeking re-election? Notably, in the instance where there is low voter turnout, a community would receive minimal to low funding for, say, government services. Arguably, voter participation may, or may not increase government spending. Fleck (1999) highlighted the tenuous relationship between elections (voter participation implied) and public policy. Politicians were thought to be responsive to regions where there was high voter turn out and subsequently responded by implementing popular policies. Indeed, a model was presented that examined the effect of voter turnout on redistributive policies. That model recognised the distribution of some fixed amount of money (government spending) across many geographical communities akin to local municipalities. The effect of turnout on spending was tested using the following regression equation:

Equation 2.1

$$[s.sub.i] = [a] + [[b] . sub.0] [[Tau] . sub.i] + [[b] . sub.1] [x.sub.1i] + . . . [[b] . sub.m] [x.sub.mi] + [[e].sub.1]$$

or

$$s_i = a + (b_0 \cdot Tau_i) + (b_1 \cdot x_{1i}) + . . . (b_m \cdot x_{mi}) + e_i$$

where:

s_i = per capita spending in a region

Tau_i = voter turnout in a region

$X_1, . . . X_m$ = variables representing and controlling for cross provincial differences

Notably, Fleck penned the above regression equation in a long unabbreviated and cumbersome fashion. The equation has been rewritten in short, abbreviated and perhaps a more statistical form to facilitate understanding.

2.3.1 The Distributive Policy

The distributive policy that was used was the (1933-1935) U.S. New Deal Federal Emergency Relief Administration (FERA) programme where \$3 billion (USD) was set aside for work projects designed to jump-start a turnaround of the Great Depression. The objective of the programme was to provide [twenty million] citizens (16% of the U.S. population) with social welfare benefits (WPA, 1942). Although the programme itself was a policy of the national [central] sphere of government, the actual distribution of funds was largely a state [provincial] and local government affair, with governors [premiers] applying to the central government to acquire funding for work and relief projects. Once received, provincial political incumbents in local constituencies would in turn access funds that were subsequently used as campaign [political] capital promised in the process of seeking re-election to, say, local political office. The question was: would there be a tendency for incumbents to be responsive to those communities where the voter turnout was high? Importantly, Fleck noted that FERA data had desirable characteristics for empirical work – more specifically, the data reflected a policy initiative, the data was consistent across local municipalities, and FERA spending appeared high in provinces where elections were being contested.



2.3.2 Regression Variables

Firstly, Fleck hypothesised that the beta (b) coefficient had a positive sign (positive directional movement) relative to the dependent variable per capita spending. That is, an increase in an independent variable would result in an increase in a dependent variable. With the dependent variable being specifically equated to FERA\$, the independent variables were as follows:

TURNOUT (Tau) = An Average of votes cast over the years 1928 - 1932

X_1, \dots, X_m representing the following independent variables:

- UNEMPL 37 = A measure of unemployment
- MANUFWAGE = Indicating a low or high wage manufacturing municipality
- FARMPOP = Representing the potential to subsistence by growing crops
- BLACK = Portion of population being black

Essentially, the variables above are control variables used to test for effects on the dependent variable Federal Emergency Relief Administration spending (FERA\$). Recognising the regression model could be simply specified as: $s_i = a + (b_0 \cdot \text{Tau}_i) + e_i$, why would there have been a need to for the control variables indicated above? Control variables were included to account for spending that might be influenced by factors other than voter turnout alone. Descriptively, those factors indicated in the regression equation were: 1)) being employed or unemployed, consequently affecting one's need for welfare relief; (2) self-subsistence by growing one's own food [crops], thus affecting the need for welfare relief; (3) wages earned in a municipality's manufacturing sector, thereby



precluding the need for welfare relief; (4) poor blacks constituents, definitively needing welfare relief; and (5) the proportion of the municipality's population being educated, thus affecting the need for welfare spending.

As was seen in Husted and Kenny where political party ideology differentiated between control (or the absence of control) by the U.S. Democratic party, likewise Fleck (1999) provides a control variable [LOYAL_DEM] to test for ideological influences on FERA spending. A positive coefficient would indicate spending favouring local governments that support the party of the day (i.e., Roosevelt Democrats) in local municipal governments where the opposition Republican was favoured – i.e., Franklin Delano Roosevelt, 1932 (Democrat) U.S. President.

Finally, recall that the FERA programme was a national policy with funds made available to the state [province]; in the allocation of FERA funds, a governor [premier] was pivotal in allocating revenue. Thus the variable LOYL_GOV tested for ideological and party effects, in the instance where a governor was seeking reelection and could use FERA funds as campaign capital to obtain votes.

2.3.3 Empirical Findings

Notably, there are 50 states [provinces] in the U.S. and regressions were run for each state to test whether voter turnout had any effect on spending. The output of calculations tended to address several questions:

- Firstly, the immediate question, what is the effect on voter turnout on government spending of FERA funds?



- Secondly, what are the effects of various control variables on the distribution of FERA funds?

- Thirdly, and more intimately, how do need and race influence FERA spending?

- Fourthly, does spending tend to be higher in local governments where there is high electoral loyalty, moderate electoral loyalty or weak electoral loyalty for the party of the day (i.e., the Democrat(s) party responsible for funding and implementing the FERA policy/programme?

With regard to the first question, the calculated coefficient for turnout equaled 33; this positive coefficient indicated that as voter turnout increases, FERA spending increases as well. Notably, the t-statistic was significant a 6.96. The implication of the output is that any local government where at least one or more additional citizen exercised their franchise to vote could expect to receive \$33 (USD) more in FERA funds i.e., an increase in revenue allocated that local government municipality. As regressions were run for all U.S. states, coefficients for turnout were positive in all cases and had relatively significant t-statistics. Although spending varied from state-to-state, overall there was support for the hypothesis that voter turnout influenced government spending.

Commenting on control variables, as expected need had a strong influence on government spending. With regard to race, however, although the coefficient for BLACK was positive (1.08), the calculated t-statistic was a mere .78. Indeed, race was statistically insignificant relative to the (33) coefficient for turnout. This should not be



surprising, considering that in those years 1928-1932 and for that matter many years thereafter, and more so in the southern U.S., blacks were disenfranchised by the use of literacy tests and poll taxes. Supposedly, local government municipalities with large black populations received minimal FERA funding. This, however, is implied, unfounded and not supported by empirical study.

Notably, the variable LOYAL_GOV and LOYAL_DEM served to control for high electoral loyalty, moderate electoral loyalty or weak electoral loyalty to reveal any relationship between government spending and constituent voters. Surprisingly, the output does not support any causal relationship where supportive or strong loyal [party] support by constituents would effect government spending. The coefficients for these two variables were negative (-15.47 and -4.13 respectively) with negative t-statistics indicating little or no significance. Notably, it was expected that local government, being supportive of Democratic governors [premiers] or the party of the day, would acquire increased funding. This, however, was not the case as indicated by the coefficients. It then appears that local party politicians and loyalty had little influence on the allocation of funds by state [provincial] governors. Rather, there is support for the theory that individual voters (i.e., turnout) and exercise of the franchise to vote results in an increase in the proportion of revenue allocated, or rather funding made available to a local government municipality.

Conclusively, in those depression years individual voters had the potential to influence distributive policies and social welfare benefits. It, however, cannot be denied that local governments with large black populations did not benefit from distributive policies, primarily as a result of electoral systems that disenfranchised the neediest. Implicitly,



disenfranchisement leads to the distribution of social welfare policies not being implemented.

2.4 LATENT GROUPS AND PUBLIC POLICY DECISIONS

Falascetti (2003) concurred that high voter turnout constituencies can influence policy - as reflected in increased government spending. Searching for other effects on policy as it relates to government spending, Falascetti queried whether underlying [latent] forces - institutions, groups of voters, or special interest groups - might influence policy making as well. Additionally, Olson (1991) considered electoral constituencies to be latent, arguing that such diffuse groups cannot influence public policy decision making, due to “free riding” tendencies of group members.

In that instance, the policy used was telecommunications policy across U.S. states - i.e., policies that favour residential customers, as government regulated the telecommunications industry. A key question was: can electoral constituencies as a collective influence policymaking? After reading Falascetti’s opening discussion where there is mention of Olson (1991) on collectivism and as Falascetti referred to Fleck on high voter turnout, there was inference that at times the constituency [collective] was latent and at other times successful (not latent) in effecting policy decisions.

Recognising Fleck’s work as *ex-post* identification of constituencies overcoming problems associated with collective actions, Falascetti desired to examine *ex-ante* conditions and factors that would facilitate constituencies’ ability to influence policy decisions as a collective. Notably, Falascetti highlighted this (*ex-post research approach*) as a weakness in Fleck’s work and, by taking an *ex-ante* approach,

endeavoured to build on if not improve on Fleck's research.

Telecommunications policy was thought to be an effective vehicle by which to examine electoral [constituency] effects, as users of residential telecommunications services were thought to be latent as a collective. This was in contrast to more organised interest groups - e.g., local exchange carriers or private sector telecommunications companies that actively lobbied to influence policy makers. Indeed, collective action theory recognises that organised groups (private sector lobbyist for example) exert disproportionate policy influence. With this in mind, characteristically in the U.S. there are many regional local exchanges carriers or telecommunications companies, and all purposefully attempt to influence public policy pertaining to telecommunications. It would then be expected that policies aimed at local exchange carriers would vary across electoral constituencies, states or jurisdictions and such policies would affect local service. Falaschetti, however, accepts that there is a greater propensity for latent constituencies to influence policy, all the while competing with organisational groups. The research, however, takes an ex-ante approach focusing on [other] formal institutions facilitating (so described) latent voters to act as a collective in an attempt to influence policy decision-making. Characteristically, a formal institution would be involved in activities such as voter registration, dissemination of voter information or facilitating same day registration and voting, thus enabling citizens (thought to be latent) to effectively mobilize on issues of importance – e.g., pricing policies that favour residential users of telecommunications services.

2.4.1 Empirical Model

Falaschetti presented a model where it was shown that variation in election institutions account for significant changes in (local telecommunications exchange) policy across



U.S. states. Questioning Falaschetti's work, a query is: Who exactly are these "election institutions?" Are they the electoral commission, for example, that administers the election process? Are they organized interest groups that in one instance pursue their own self interests through lobbying and in another instance influence electoral constituencies by reducing voter resource costs? One can only infer as to what is meant by election institutions in the absence of direct reference as to whom and what comprises such entities. Nevertheless, it was shown that variation in turnout had significant explanatory effect as well. In several regression equations, two policy alternatives (in separate calculations) were considered – see table 2.1. Notably, although no numbers are shown in table 2.1, it is shown to illustrate how data will be presented for analysis in chapter 5. In table 2.1, the first policy alternative, being a dependent variable, represented telecommunications users' preference for SEPARATE local and long distance service providers, to this end resulting in lower and efficient allocation of costs. The second alternative pertains to policies that favour end-user LOCAL EXCHANGE PRICING (LEC_PRICE); such policies effect local service providers that provide both local and long distance telecommunications services. Interest groups preferred one or the other policy alternative and attempt to influence policy makers to, in the case of end-users, minimize pricing or, in the case of service providers, maximise price.

Notably, Falaschetti presented two sets of regressions and each set included three calculations [regressions] testing for effects on a dependent variable. Again, in one set there were three calculations with the dependent variable being SEPARATE and in a second set the dependent variable being LOCAL EXCHANGE (LEC_PRICE) PRICING. In each set each set where there were three regressions, the independent



variables were as follows:

- TURNOUT = Percentage of eligible voters who voted in the U.S. presidential elections.
- LEEC_HHI = A local exchange carrier (LEC) index of market concentration.
- AT&T = An organized group whose interest are in opposition to local exchange carriers.
- LOOP_COST = An added regressor applied to the second set of regression calculations where LOCAL_EXCHANGE was the dependent variable.

The variables above represent organized groups attempting to influence policy and as are indicative of collective action. More precisely, TURNOUT above is a vector of variables that measure the capacity for residential users of telecommunications to act collectively. See Rice (1988:474-483) for a discussion on the matrix approach to linear least squares. In reference to the variable LEEC_HHI above, the Herfindahl-Hirschman Index is a commonly accepted measure of market concentration. It is calculated by squaring the market share of each firm competing in a market and then summing the resulting numbers. For example, for a market consisting of four firms with market shares of thirty, thirty, twenty and twenty percent, the HHI is 2600 ($30^2 + 30^2 + 20^2 + 20^2 = 2600$) (FRBM: Online). Referring to the variable AT&T, Essentially, the American Telephone and Telegraph Company is a competitor and supplier of long distance telephone services. Finally and referring to loop costs, A loop is a connection to a local exchange and is essentially an infrastructure cost passed along to the telecommunications user.



Table 2.1

Example of Table for Regression Estimates for Turnout

Parameter Estimates: **First Set**

(Source: Falaschetti, 2003:97)

Dependent Variable = Separate

| Estimation (Regression) | 1 st Regression | | 2 nd Regression | | 3 rd Regression | |
|-------------------------|----------------------------|-----|----------------------------|-----|----------------------------|-----|
| Measuring Instrument | N/A | | Same Day | | Perot | |
| Dependent Variables | Coefficient | SE | Coefficient | SE | Coefficient | SE |
| TURNOUT | --- | --- | --- | --- | --- | --- |
| LEEC_HHI | --- | --- | --- | --- | --- | --- |
| AT&T | --- | --- | --- | --- | --- | --- |
| LOOP_COST | --- | --- | --- | --- | --- | --- |

Parameter Estimates: **Second Set**

Dependent Variable = Local Exchange

| Estimation (Regression) | 1 st Regression | | 2 nd Regression | | 3 rd Regression | |
|-------------------------|----------------------------|-----|----------------------------|-----|----------------------------|-----|
| Measuring Instrument | N/A | | Same Day | | Perot | |
| Dependent Variables | Coefficient | SE | Coefficient | SE | Coefficient | SE |
| TURNOUT | --- | --- | --- | --- | --- | --- |
| LEEC_HHI | --- | --- | --- | --- | --- | --- |
| AT&T | --- | --- | --- | --- | --- | --- |
| LOOP_COST | --- | --- | --- | --- | --- | --- |

2.4.2 Empirical Results

Again, two sets of regressions were run (see table 2-1), where one set had a dependent variable (policy outcome) of separation [SEPARATE] and the second set had a policy outcome reflecting a policy for LOCAL_EXCHANGE. Moreover, in each set three regressions were calculated. In this way and approach Falaschetti differed from Fleck.



That is, for each of the two sets of calculations (and therefore two different dependent variables or policy outcomes) in addition to an ordinary least squares (OLS) calculation, there are two additional calculations (per set) where unique measuring or data instruments were used to test theories on effects on varying policy outcomes. Unfortunately, Falaschetti uses the term “instrument” but does not discuss exactly what is meant in the use of that term. An assumption, therefore, is that Falaschetti is referring to the measuring instrument for collecting and handling data.

In each set there is (1) an OLS calculation; (2) a calculation using a measuring instrument reflecting “same day” voting capability; and (3) a calculation using a measuring instrument entitled “Perot” that represents an *ex-ante* institution that facilitated constituents to act as a collective and overcome latency. Falaschetti used the so-called instrument *Perot* to represent an informal institution that influences the latent group. Ross Perot was the 1992 U.S. presidential candidate that, theoretically to produce political support, reduced the voting costs of latent groups. Essentially, the latent group was being assisted to act effectively as collective to obtain a favourable policy outcome. In the case of Hamilton’s study, that policy outcome would be for SEPARATE, as separation would result in lower telecommunication costs to end-users. Consequently, a positive coefficient would be expected relative to SEPARATE; the coefficient would be negative relative to LOCAL_EXCHANGE.

Falaschetti’s approach in formulating two sets of regression where each set includes a least squares calculation was to test (in each regression set), recreate and reaffirm (for example, Fleck’s findings) that the electorate can influence policy. The first least squares calculation in the first set of regressions, where the dependent variable was SEPARATE,



the coefficient for TURNOUT was positive, indicating that the electorate could influence policy for a separate telecommunications exchange. Indeed, there was a positive directional movement and relationship between TURNOUT and the dependent variable. However, the same could not be said for LOCAL_EXCHANGE, with a negative coefficient that indicated no significant influence on a policy regulating a local exchange.

For that matter in the case of the first set of three least squares calculations, where varying instruments were used, TURNOUT had a positive coefficient. It is in the second set of regression where TURNOUT is regressed on LOCAL_EXCHANGE that the coefficients are negative in all instances – i.e., the independent variables. A question then raised is: what is the differentiating factor that might explain why in one policy alternative the coefficients are positive indicating that voter turnout can influence a policy decision, while in the second policy alternative citizens are not able to influence policy decisions as a collective.

An implied assumption about collective theory is offered as an explanation for why in one instance TURNOUT appears to affect the policy outcome and in the second instance TURNOUT appears not to affect the policy outcome. That assumption is that institutions, at times, choose to remain neutral and opt not to assist latent groups of voters (Falaschetti, 2003:102). Institutional efforts (and effects) are then tacit, somewhat predictable but at times neutral in any “activity” to mobilize latent voters [constituencies].

Finally, Falaschetti noted that policy makers (referred to as policy entrepreneurs) could influence political participation by manipulating formal electoral institutions. This is most desirable, as opposed to the more costly alternative of influencing voter



participation. Implicitly, policy makers could influence institutions, rather than influence voters directly to garner support for policy decisions. An underlying aspect then is the recognition of cost of resources and non-pecuniary benefits of voting (rather than voter turnout itself) being a causal factor for public policy decision-making. Consequently, Falaschetti, therefore, gives cause to look to other factors influencing public policy as reflected in government spending.

2.5 COLLECTIVE ACTION AND PUBLIC POLICY DECISION MAKING

Falaschetti examined institutional effects and latent groups' potential to influence public policy decision-making. As per that work, at times the so called "latent group" proved influential in effecting public policy decision making but at times appeared to be incapable as a collective to influence public policy decision making.

Hamilton (1993) examined the ability of constituencies [communities] to engage in collective actions in opposition to institutions. Importantly, evidence was presented that voter turnout rate can serve as a viable proxy for representing collective actions. Hamilton (1993) was a precursor to Falaschetti (2003), as both focused on collaborative actions and the propensity to influence policy decisions. The marked difference in the latter and the former is that Hamilton considers negative externalities, the ability of the organisation to internalise externalities and how so called "negative" externalities serve to motivate communities to take action as a collective to influence policy decisions to their benefit. Moreover, Hamilton applied the "Coase Theorem" to a political system, in turn extending *coasian* theory to public policy decisions. Although Coase focused on the actions of business firms an extension to, say, the public sector can not be avoided as it



subsequently falls on government to address an apparent market failure, as when the actions of one infringes on the rights of another (Coase: Online).

Questionably, can the Coase Theorem be applied to public policy decision-making and can the theorem be applied to explain actions to curtail market failures? The Coase Theorem states that when property rights are well defined, a firm generating externalities will locate, all things being equal, where the least damage can be done (Hamilton, 1993:104). Added to this, Rosen (1999:99-100) noted the implication that once property rights are established, government intervention is not required to deal with externalities. Where possible, then, the collective may choose to exercise property rights, if indeed there are any property rights that may be used as a defence against eminent externalities.

Importantly, collective actions will occur in response to negative externalities generated by the toxic waste handling firm. Indeed, Hamilton's work involves examining collective actions in response to negative externalities, as the firm contemplates establishing or expanding waste processing operations in a designated community. The negative affects of processing waste material is recognised as the negative externality associated with the firm's decision to establish or expand operations. True, in this instance the policy decision is borderline in being described as a public policy decision but the implication for public policy is that *coasian politics* suggest that political interest groups compete and pursue their self interests; and as this occurs, public [government] policies are created, designed and implemented in an effort to correct market failures. Whether, for example, the neighbourhood, group or community is successful in counteracting the un-welcomed waste handling facility and whether there is support from the political system, depends on (1) the community's ability to expediently use political resources, (2) the community's



income profile, (3) the number of politically active community members, (4) and any loss or gain to the community (Hamilton, 1993:104). Taking such factors into consideration, how does Hamilton go about measuring the potential for collective action?

2.5.1 Measuring Data and Methodology

Although Hamilton examined collective action against a firm that was embedded in the private sector, the contribution made is an examination of opposition manifesting itself in the form of collective political action. Moreover, there was the explicit use of the percentage of the voting age population in the national election as a proxy to represent collective action. The literature revealed that firms use such a proxy as a predicting variable to anticipate whether constituents will engage in collective action, thus communicating their dissatisfaction with the location of waste disposal facilities in their communities (Epley, 1989). Indeed, firms endeavour to calculate variations in constituency response to identify locations where political action will be minimal. With regard to the public sector it can be expected that opposition and collective action would occur against government policies that do not favour the interests of the voters.

There are several categories that can be used to describe facilities that treat, store and dispose of waste material. Hamilton focused on collective action against facilities where primary operations involved waste shipped from so called “other generators” of waste material. Other categories include private firms that generate and manage waste on site, commercial facilities that treat or dispose of waste from others for a fee, and public generators that manage waste on site (such as the military), just to mention a few. Indeed, collective action against these types of facilities was most apparent because these facilities have externalities that are not offset by job creation; additionally, they do not



generate tax revenues for the local government. Not surprisingly, high-income communities had suffered the least from toxic waste handling operations and poor communities had markedly more sites contaminated by previous exposure to hazardous waste. Clearly, low-income communities were more exposed to hazardous and toxic waste than high-income communities. This is cause to query low-income communities' ability to act collectively to influence or at least oppose policies of an unfavourable nature.

Hamilton began examining the prospect of collective action of a constituency by first determining the probability that a firm would expand its operations in a particular community. Notably, the firm endeavours to predict where on the one hand resistance can be expected and on the other hand where resistance will be minimal. As individuals exercise their franchise to vote, the greater the voter turnout in a given area, the less likely that an area would be identified for expansion of commercial waste processing facilities and vice versa. Whether this holds true will be discussed in the following section - i.e., *Results*.

Towards building a probability model and considering whether to expand or not to expand waste treatment operations in a community, a profitability function [$\pi_{ij} = f(X_j, N_i)$] was designed with X_j representing a vector of characteristics associated with location or community (j) and N_i representing a vector of characteristics of the firm designated by (i). The rationale is that the firm will desire to locate or expand operations at a location that has a high probability of profitability, while meeting low community resistance. Thus, for each location (j) the probability that a waste handling



firm is planning to expand its operations at a location is illustrated by $P_j = F(a + \mathbf{b} X_j)$, with (F) representing a cumulative logistic probability function estimated by a *logit* specification.

Notably, Steifel (1990:130-137) discussed the use of a logit model. The logit form is a probability model and many times the numeric form is manipulated algebraically and logarithmically – i.e., $\text{Log}[P/(1-P)] = B_0 + B_1 X$. In this instance $P/(1-P)$ are the odds of an event occurring (P) relative to the event not occurring. Hamilton used the logit form because the research encompasses the firm's probability that it may or may not expand its waste treatment operation in a community. Notably, the dependent variable is not a probability; rather, it is a logarithm of probabilities, in Hamilton's study, derived from the population of private waste treatment facilities and the probability for expanding or not expanding operations at each site [community]. As well see Mcfadden (1973), Werdern, Froeb and Tschantz (n.d., 3), also Hosmereg and Lemeshow (1999).

Hamilton then considers characteristics peculiar to locations where waste-processing operations may be established or expanded, as such characteristics would impact the potential for profitability in any particular (X_j) community. The location specific characteristics used to formulate X variables of the linear equation were: (1) waste generation and capacity; (2) factors relating to the pricing of land, buildings and whether any value would be added or attained from operations; (3) the prospect of having to pay compensation, proxied by education and income, taking into consideration coasian compensation demands – as the firm attempts to minimize compensation arising from expanding operations, achieved through an evaluation of the value communities place on



the environment (*ex-ante measures*) and the potential for *ex-post* measures relating to, say, toxic tort litigation (Hamilton, 1993:13). Also considered under compensatory characteristics are the urban makeup (%URBAN) and population density (DENSITY); 4) collective action, in consideration of community members opposing the expansion of operations, thus giving rise to the variable (%VOTE; and (5) added factors and alternative explanations relating to land prices and environmental quality – a decision relating to expand or establish operations then is an estimation of potential liability from communities having low incomes *v.* communities having high incomes.

The following are independent variables comprising the linear [logit model] equation, as such variables were identified based on the characteristics previously identified:

- CAP = Hazardous Waste Processing Capacity
- WASTE = Hazardous Waste Generated
- MANUFAC = Value Added from Operations
- LAND = Land and Related Property Value
- HOUSE = Median Housing and Related Property Value
- INCOME = Median Household Income
- %UNIV = Percentage of Adults w/ More Than 4 Years of College Education
- % N_White = Percentage of Population That is Non-white
- %URBAN = Percentage of Population Living in Urban Area
- DENSITY = Population per Square Mile
- %VOTE = Percentage of Voter Turnout in Presidential Election



2.5.2 Results

Focus should not be lost of Hamilton's key research question: what is the impact of collective action on policy decisions (albeit for the private firm) of waste handling companies? Put another way, can a local constituency through voter turnout impact a [policy] decision to expand or establish waste treatment operations at a given location. Notably, the probability of the occurrence serves as the Y variable represented by P_j in the logit specification.

Indeed, a sample of 156 communities [constituencies] was studied, with that sample being segmented into two subgroups. Subgroup (1) consisted of 72 communities that had planned for (or anticipated) the expansion of waste treatment operations in their communities. The second subgroup consisted of 84 communities that had no plans (no anticipation) of expansion of local waste treatment facilities. Notably, the two subgroups were very similar in demographic factors such as household income and urban population and had only small disparities in calculated coefficients – as reflected in the coefficients for the X variables previously indicated. However, there was a statistically significant difference for the variable %VOTE representing collective action. For the subgroup with a sample (n) of 84, the coefficient was .56 and the coefficient for the sample (n) of 72 was .52. Importantly, the difference is statistically significant at the 1% level with a t -statistic of 3.4. The results of the logit specifications, with regard to voter turnout, confirm what might be considered to be the obvious. That is, the higher the voter turnout in a particular community, the less likely that community will be targeted for expansion of waste treatment operations. Extending the rationale further, the more politically active residents of a community are, the more likely the firm will conclude that politicians will



respond to their constituent's opposition to waste treatment operations be conducted in their "backyard," so to speak (Hamilton, 1993:115). Interestingly, *coasian variables* of education, income, *etc.* were insignificant offering little explanatory effect on the probability of establishing or expanding waste treatment operations. Implicitly, residents should not be expected to accept compensation to mitigate any negative affects from hazardous waste treatment operations. Finally, for this dissertation, there is indeed substantiation for using voter turnout to measure the effect of the voting franchise on public policy decision making, as reflected in government spending on, say, HIV/AIDS treatment in South Africa.

2.6 SUMMARY AND RELEVANCE TO THE DISSERTATION

Jack and Lagunoff (2003) noted that private decisions of citizens co-mingle with government policies to affect a state/government variable. Additionally, Jack and Lagunoff noted that policies are determined by the median voter who, to some extent, possesses restricted voting capability. Essentially, a limited set of eligible voters influence polices decisions. The authors studied properties of dynamic enfranchisement, thus highlighting the time dimension of constituents acting collectively on issues relating to wealth accumulation, the use of public goods and the threat of insurrection. As indicated in the literature review, their research endeavoured to examine the relationship between voters and public policies. Likewise, this dissertation endeavours to add to the literature where there is examination of the ability of voters, as a collective, to influence public policy decisions. Inherently, public policy decisions and their relative importance can be prioritised based on the allocation of revenues. Subsequent expenditures, for example, give indication to the relative importance of a policy issue and in total indicate



the size of government, as reflected in total government spending. What effect, then, does the electorate have on government expending, the size of government and ultimately public policy decisions, as it (the electorate) exercises its franchise to vote?

This literature review serves to develop a research methodology to determine any explanatory effects on the proposed dependent variable of government spending at the provincial sphere of government on the policy issue relating to HIV/AIDS treatment. Husted and Kenny (1997) motivate researchers to ponder the relationship of poor pivotal voters' effect on government spending. Their research gives cause to examine the relationship of voters to government at the mid-level (state/provincial) sphere of government. Two independent variables (INCOME and WELFARE) featured prominently and were segmented and differentiated to account for any significant effects on per capita government spending. Among other variables, *voter turnout* was regressed on the dependent variable and interestingly recurs in the literature (Fleck, 1999 on voter effects on redistributive policy) as an important variable to be included in formulating a regression specification. Falaschetti (2003) desired to look beyond voter turnout; indeed, there was a belief that other [latent] forces were at work and had explanatory effects on government spending. In a way, voter assistance as an example of latent forces, facilitate the electorate and move it towards effectively functioning as a collective to impact policy decisions – e.g., telecommunications policy and the regulation of service providers. Hamilton (1993) drives the literature towards examining and emphatically recognising collective action. Indeed, Hamilton leads to a conclusion that *voter turnout* can and should offer some explanatory effect on policy decisions. At best VOTER TURNOUT should be a variable in any regression equation formulated to explain government



spending. Conclusively, the literature gives cause to include other variables such as INCOME, EDUCATION, LATENT FORCES that facilitate the electorate to function as a collective; the variables serve to test for robustness of the regression equation as well. As an example, provincial control by the party of the day (the ANC) should have a positive coefficient, thus moving in a positive direction relative to government spending. Indeed, these are the contributions of this literature review and these contributions shape the following discussion on the research methodology.



CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

CAUSES AND EFFECTS ON PROVINCIAL SPENDING FOR HIV/AIDS

3.1 INTRODUCTION

Before summarising the research methodology, it is important to note that although causal explanations are supported by statistical output, the output does not necessarily prove causation. Nevertheless, the statistical approach and techniques employed do serve to model the world perceived by the researcher and thus enable the researcher to offer a response to the research question based on empirical evidence. Having said that, the research design for this dissertation is evaluative and generally measures a programme. Indeed, that programme is one of HIV/AIDS treatment in South Africa. The design is further qualified by being empirical and quantitative. Furthermore, the research methodology encompasses the use of secondary data, organising and analysing that data through the use of select statistical techniques. Upon identifying numerous variables that might offer some explanation or causal effect on provincial government spending for HIV/AIDS, descriptive statistics will serve to summarise and organise the secondary data, in order that the data can be effectively managed. Thereafter, bivariate and multivariate relationships are established to move towards answering the research question. Indeed, that question is whether the electorate, as reflected by voter turnout, can influence provincial spending on HIV/AIDS treatment. Finally, the hypothesis is that, indeed, the electorate does not have the potential to influence provincial spending and, at the end of the day, such spending reflects a public policy decision.



Thus far this dissertation has entailed, firstly, an introduction where public policy decision-making was presented as the background for this study of the potential for voters to affect or influence provincial government spending for HIV/AIDS. There was motivation in the introduction to focus on the expenditure side of the budget and to focus on that particular line item that represents one of the most pressing policy issues of the day – spending on HIV/AIDS treatment. Secondly, there was a literature review from which select theoretical approaches and concepts will be drawn from to design a statistical model to examine provincial government spending on HIV/AIDS. For example, the notion of a latent group assisting voters to act as a collective (the variable) will be included in the statistical model to be presented in section 3.4 of this chapter.

The emphasis in the model to be presented, however, will be on voter turnout, as suggested in the literature review. However, a number of control variables will be included to control for additional effects on government spending. The task henceforth, after stating the problem and the hypothesis, is to present the statistical approach to be used to examine causes and effects on provincial government spending for HIV/AIDS treatment. Moreover, those variables exhibiting potential causes and effects on government spending will be presented for inclusion in the multivariate equation. This will be followed by a thorough discussion of the statistical techniques to be employed.

3.2 RESEARCH DESIGN

Babbie, Mouton, Vorster and Prozesky (2002:78) offer a schema for determining a research design. Having referred to that work, the research design for this dissertation may be described as empirical, with analysis of existing data. The existing data are numeric, and secondary data that will be used for statistical modelling. Moreover, a



quantitative paradigm is applied where there is analysis of select independent variables to determine whether they offer some explanation of causal effects on provincial government spending for HIV/AIDS. A quantitative paradigm, for example, entails assigning numbers as qualitative indicators of the electorate's ability (in the case of this research) to influence a public policy decision by government to budget for and spend on HIV/AIDS treatment. Naturally, an indicator would be voter turnout but a proxy was designed by calculating the change in voter registration (the independent variable LAT_GROUP_04), with the dependent variable for government spending on HIV/AIDS being regressed on the independent variable. Recognising the multi-variability of the construct, the quantitative paradigm also encompasses quantifying the role of a multitude of variables that may describe causes and effects. Finally, the quantitative paradigm requires the researcher to identify sources of error in the research process. This will be evident and discussed shortly hereafter, as there is recognition of inefficiency and biasness resulting from sample size and the sampling approach.

In reference to control variables, where do they [control] variables come from and why are they necessary? Notably, the variables (to be presented and discussed in the section addressing operationalisation) arise from theory (Healy, 1999:431). As it relates to this dissertation, theory is drawn from the literature and is summarized as:



Control variables that may explain causality and effects on provincial government spending for HIV/AIDS arise from the potential for income effects; the variable income is therefore offered as a possible control variable. Moreover, distributive effects are tested for through the inclusion of a variable reflecting voter turnout, used to test the hypothesis. Collective theory gives cause to consider the potential for latent groups to facilitate voter efficacy - can voters as a collective influence policy decisions? The variable latent group is therefore included in the multiple regression equation.

Indeed, the chapter two literature review offers theories and the basis for considering variables to be included in the multiple regression equation. Those theories are then operationalised as variables, relative to government spending on provincial HIV/AIDS spending. Ultimately, there is a desire to examine the relationship between two or more variables. It, however, becomes necessary to identify what variables should be included, as will be seen and discussed in the section relating to statistical techniques – i.e., test for multicollinearity and test of significance. Notably, Healy (1999:431) emphasised that the world is complex and thus multivariate, even when the discussion is of bivariate relationships. [*sic*]. Thus the statistical approach is to consider many (23) variables and then proceed to identify and use those variables that are most significant.

As there was discussion of a quantitative paradigm being one aspect of the research design, the specific application of statistics is natural in that over time the link between the two (a quantitative paradigm and statistics) has been evident – the link forged and cemented through the work of Galton (1889) in his introduction and subsequent use of the coefficient of regression. Indeed, in keeping with the earliest practitioners of applied statistics through to Stouffer (1950), the subsequent use of statistical analysis is implied in a quantitative paradigm. Notably, Stouffer studied *The American Soldier in World*



War II Surveys of Men Regardless of Race July-November 1945 (University of Connecticut: Online). Stoufer's work, along with the work of Lerner and Lasswell epitomizes the Policy Science Movement (Cloete & Wissink, 2000:58). Thus, this dissertation remains true to those preceding methodologies and endeavours to apply non-probability sampling as a definitive statistical technique. Essentially, non-probability sampling is non-random sampling. In random sampling, every unit in a population is identified and has an equal chance of being in a [smaller] representative sample reflecting the [larger] population. Such a sampling technique is probability based in that every unit in the population has some chance of being included in a sample. For this dissertation and research, non-probability sampling has been chosen because the sample size is small and not necessarily representative of a population. Plainly, the sample consists merely of nine provinces and does not represent a larger population of provinces. Indeed, numerous provinces or states are not a characteristic of the mid-level subnational sphere of South African Government - unlike the United States where that are 50 states [provinces]. In that instance a representative and random sample could be generated from the population.

At best, a non-probability approach offers convenience – convenience sampling being non-probability sampling. Indeed, convenience sampling chooses, say, sample participants based on the relative ease of access. Characteristically, the sample is self-selected. The convenience, in the case of this research and dissertation is that of not having to draw a sample from a population. This is in contrast, for example, to drawing a sample from the 284 municipalities in South Africa. Random sampling would be applied in this instance and probability sampling used to examine municipal spending on



HIV/AIDS treatment programmes - government spending. This, however, is not the focus of this dissertation but this research can serve as a foundation for examining municipal spending for HIV/AIDS. Notably, convenience sampling does not produce a fair representation of a population. But this is not a problem for this research, as the aim is not to draw back to a population of provinces, as none exists. There are merely a small number of cases (9) that are readily available for use. Thus it becomes necessary to draw attention to *caveats* associated with small a sample size and non-probability sampling.

Because the research associated with this dissertation focuses on the nine provinces in South Africa, the sample size cannot help but to be small. The study might be redirected to examine government spending on HIV/AIDS at the local government or municipal sphere of government but an assumption is made that most municipalities (with exception to the largest metropolitan cities) are not engaged in spending for HIV/AIDS. A budget review of those 284 municipalities would be in order but time and resources do not allow for such a review. Indeed, this could be the basis for a follow-on study. Having said that and recognising the small size of the provincial sample, undoubtedly questions must be raised as to the efficiency of any estimator (Healy, 1999:154-156). A small sample (N_1) will yield a standard deviation (s) that will be higher relative to, for example, a larger (N_2) sample. Indeed, the efficiency of the estimator is relative to the size of the sample. The larger the sample, the more reliable the estimator – e.g., the standard deviation (s). Thus there will be a requirement to critique the efficiency of any estimator generated for the [provincial] sample. Secondly and with regard to non-probability sampling, a question is raised as to the representative-ness of the sample and the ability to make inferences about the greater population. Since there is no population (only nine provinces



in total), this caveat is extended to whether any conclusion or inferences can be made and applied to explain causes for and effects on government spending for any one province, or the total sum of all the provinces. In short, accuracy of statistical significance will be questionable. Finally, ideally an estimator that is unbiased is most desirable, thus giving greater creditability to any sample statistic – when the statistic is unbiased, there can be certainty that the estimator is representative of the population, or in the case of this research, the total sum of the provinces. It can then be expected that any estimation of the parameter mu (μ) would therefore be accurate. Due to the small sample size and non-random sampling, statistical outputs must be scrutinised for efficiency and biasness.

In defence of a small sample size and non-random sampling, using small samples has been used to study processes that are common to groups – say, a group of people. Moreover, where non-random sampling has been used, the absence of random selection may be offset by the accuracy of the basic [input] data. Truly, in this dissertation secondary data are being used and (as noted earlier) cause has been given to question the efficacy of data collecting organisations (Statistics South Africa). An assumption, however, is made that for the most part secondary data used here has depth, relevancy and are relatively accurate. Certainly, the ability of government and quasi-government organisations in the collection of [census] data will be more reliable than any one individual's efforts. Nevertheless, caution is called for while relying on a small sample and using non-random sampling. Employing such caution, Chow (2000) showed and proved that convenience sampling need not detract from generality in findings. Research designs and methodologies that (probability sampling and the like) yield ambiguous results should be subject to scrutiny. [*sic*] Moreover, small samples have been used in



Vallecillos and Moreno (2002) - albeit a relatively small sample of 49 students in an effort to study learning of statistical inference. Convenience sampling has been used in Dunn and Horgas (2004). Non-probability sampling features prominently in Mccammon (1994) and Scott (1974). Indeed, representivity can be achieved in the use of small samples and non-random sampling and the results have the potential to be unambiguous. Notably, those works cited have been consulted to guide in determining the appropriate statistical technique to use in order to minimise bias, inefficiency, and ambiguity in data output and analysis.

Conclusively, the research design is summarised as being characteristically evaluation based in that there is measurement of a programme (some might say lack of a programme) for HIV/AIDS treatment (Babbie *et al.*, 2002:355). Being evaluation based, an empirical-quantitative paradigm is applied. Thus a quantitative paradigm leads to applying definitive statistical techniques - i.e., to be discussed hereafter. The sample size is small and non-probability sampling will be used, thus implying limitations of the statistical output. Finally, the evaluative empirical-quantitative statistical research design is augmented by a limited qualitative research design entailing a case study touching on being longitudinal in that a historical time line (figuratively) is drawn to depict the linear progression (denial to acceptance) associated with the actualisation of treatment for HIV/AIDS in South Africa (Babbie *et al.*, 2002:398).

3.3 OPERATIONALISATION: METHODOLOGY

To begin operationalising the research methodology, there is reference to ProDEC (Babbie *et al.* 2002:72) to reiterate (1) the research problem, (2) the research design (3) the quest for empirical evidence and (4) the need to draw conclusions. Firstly, the



research problem is the cautious but slow pace at which the government of South Africa has responded to the AIDS epidemic. Initially, the response had been one of denial. Over time there has been recognition that indeed HIV causes AIDS but government spending on HIV/AIDS treatment programmes has not been optimal. This linear progression of denial to acceptance will be discussed in the following chapter. Notably, HIV/AIDS spending will be the dependent variable and the research question is: can voters influence public policy decision making on the matter of spending on HIV/AIDS treatment programmes? In this instance the independent variable will be voter turnout. Secondly, the research design was discussed in the preceding section but is again stated to be an evaluative, empirically quantitative, and a qualitative longitudinal case study. Thirdly, empirical evidence will answer the research question supporting either a response in the affirmative, a response in the negative or a suggestion of inconclusiveness. The empirical evidence will be in the form of the statistical output resulting from applied statistical techniques. Those techniques will be discussed shortly hereafter. Fourthly, this dissertation and research will conclude (the final chapter) by drawing appropriate conclusions. As such, ProDEC serves as a guide in outlining the problem, the research design, the collection of evidence and arriving at a conclusion.

Understanding the research problem is key to this dissertation. Achieving that understanding is an objective of the case study but for the moment the problem stems from, first, denial and inaction on HIV/AIDS treatment in South Africa, manifested by inadequate government spending for HIV/AIDS treatment. Over time, denial and inaction have given way to a public policy on HIV/AIDS treatment in South but the policy still does not reflect a sense of urgency in response to the epidemic. Can



constituents by exercising their franchise to vote influence public policy decisions to be made by government on HIV/AIDS spending? The research hypothesis now stated is:

Voters do not have the potential to influence public policy decisions by exercising their franchise to vote.

The specific public policy decision is provincial governments' deciding to spend on HIV/AIDS treatment; such spending (amounts expended) is a reflection of a public policy decision. Notably, the unit of analysis entails a social intervention – i.e., spending, implementing an HIV/AIDS treatment programme, or the policy to combat the negative effects of HIV/AIDS. Thus the unit of analysis (a social intervention) is considered to be a *world one object*, with the characteristic of being a real life endeavour lending itself to empirical research (Babbie *et al.* 2002:84-85). This unit of analysis is essentially an action or decision structured to achieve definite goals and objectives. Whether those goals and objectives have been achieved remains to be confirmed or refuted in the chapter involving the analysis of data output and subsequent drawing of conclusions.

The first steps towards operationalising the research were taken by using a non-random sample and by conforming to using a small sample size. That sample (the cases) consists of the following nine provinces:



Table 3.1

Individual Cases (Provinces)
Comprising the Sample

1. Western Cape
2. Free State
3. Gauteng
4. Northern Cape
5. KwaZulu Natal
6. North West
7. Eastern Cape
8. Limpopo
9. Mpumalanga

As a start, the research entails examining causes and effects on government spending for HIV/AIDS by each of the provinces indicated above. The primary causal effect (bivariate relationship) is between provincial government spending on HIV/AIDS and provincial voting. Babbie *et al.* (2002:81) noted that in order to show a causal relationship exist between two variables, there is a requirement that the cause precedes the effect in time. Therefore, certain variables should characteristically predate, say, government spending on HIV/AIDS. To that end, the following are independent variables to be included in the multivariate equation, with those variables suffixed by two numbers indicating the year (time element) leading up to the effect on provincial government spending.



Table 3.2

Variables Included In Multiple Multivariate Equations

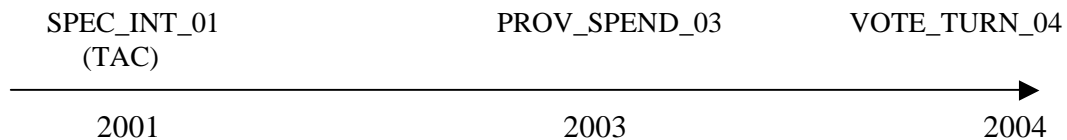
| Name | Description |
|-----------------------|---|
| 1. VOTE_TURN_04 | Provincial Voter Turnout – 2004 Provincial Elections |
| 2. PARTY_EFF_04 | Party Effects/Dichotomous Var. (1) ANC Prov. Legislature |
| 3. WH_RACE_01 | Percent of Provincial Population That Are White |
| 4. EDUCA_01 | No. of Individuals w/less than Std.10 Education |
| 5. INC_01 | % of Prov. Pop. (Age 15-65) w/income R400-800/month |
| 6. AIDS_PREV_02 | Prov. HIV/AIDS Prevalence Rate at July 2002 |
| 7. NEED_04 | Those Not Economically Active at March 2004 |
| 8. LAT_GROUP_04 | Latent Group Influence - % Change in Voter Reg. '99 – '04 |
| 9. SPEC_INT_01 | Special Interest Group TAC Influence On Aids Policy |
| 10. Δ_PROV_GDP_03 | % Change in Prov. Economic Productivity 2002-2003 |
| 11. PROV_SPEND_03 | Provincial HIV/AIDS Expenditure for 2003 |
| 12. REG_VOTERS_99 | Registered Voters for 1999 Elections |
| 13. REG_VOTERS_04 | Registered Voters for 2004 Elections |
| 14. NATL_SPEND_02 | Conditional Grants To Provinces for HIV/AIDS Spending |
| 15. TOTAL_POP_01 | Total Provincial Population 2001 Age 15 - 65 |
| 16. TOTAL_POP_03 | Total Provincial Population 2003 Age 15 - 65 |
| 17. POP_GROW_03 | Growth Rate for years 2002-2003 |
| 18. PROV_GDP_02 | Provincial GDP for 2002 – Provincial Economic Growth |
| 19. PROV_GDP_03 | Provincial GDP for 2003 – Provincial Economic Growth |
| 20. DEM_GOVTSERV_02 | Demand for Government Services - 2002 |
| 21. DEM_GOVTSERV_03 | Demand for Government Services - 2003 |
| 22. Δ_DEM_GOVTSERV_04 | Change in Demand for Government Services 2002-2003 |
| 23. NNP_RACE_04 | % of Votes Received by New National Party – 2004 |



Again, the longitudinal time factor of each variable is represented by the last two numbers that indicate the year of the inception of the causal effect on provincial government spending on HIV/AIDS treatment. A representative time line is presented as follows:

Figure 3.1

Time Line Illustrating Causal Relationships



The aim above is to show that the cause precedes the effect. Certainly, in the case of activism by the Treatment Action Campaign, the cause-effect relationship would be evident. The notion of cause preceding effect, however, is not absolute. The hypothesis (construed) is that government spending will not increase due to voter turnout but clearly voter turnout above follows government spending. This should not be surprising as, theoretically, the party of the day would be expected to accelerate government spending prior to elections in an effort to acquire votes, fulfil prior campaign promises or to facilitate their remaining in power. For the most part, the 23 variables listed may be placed somewhere along the time line shown above in an examination of a causal relationship with the dependent variable PROV_SPEND_03. Thus there is an attempt to show longitude, in that there is a time factor attached to variables that hypothetically influence, or



to be determined, will not influence the dependent variable. Whether this is true one way or another remains to be determined. Conclusions, however, will be subject to the statistical techniques used and subsequent data analysis.

3.4 VARIABLES AND DATA SETS

Tables 3.3 through to 3.7 shows the sample classes, variables and associated data sets. The attached annexure [appendix] provides a reference list for the following data sets.

Table 3.3

Variables and Data Sets

| PROVINCE | VOTE_TURN_04 | PARTY_EFF_01 | WH_RACE_01 | EDUCA_01 | INC_01 |
|---------------|--------------|--------------|------------|-----------|--------|
| W. Cape | 1,566,949 | 0 | .19 | 1,038,110 | .07 |
| Free State | 1,011,606 | 1 | .06 | 482,224 | .30 |
| Gauteng | 3,408,308 | 1 | .41 | 2,055,855 | .06 |
| Northern Cape | 318,702 | 1 | .02 | 145,344 | .25 |
| KwaZulu Natal | 2,741,265 | 0 | .11 | 1,447,674 | .15 |
| North West | 1,298,563 | 1 | .06 | 619,263 | .17 |
| Eastern Cape | 2,231,543 | 1 | .07 | 963,428 | .19 |
| Limpopo | 1,614,514 | 1 | .03 | 653,487 | .28 |
| Mpumalanga | 1,11,692 | 1 | .05 | 440,640 | .21 |



Table 3.4

Variables and Data Sets

| PROVINCE | AIDS_PREV_02 | NEED_04 | LAT_GROUP_04 | SPEC_INT_01 | Δ_PROV_GDP_03 |
|---------------|--------------|-----------|--------------|-------------|---------------|
| W. Cape | .04 | 1,029,000 | .25 | .49 | -.19 |
| Free State | .17 | 811,000 | .08 | .19 | -.54 |
| Gauteng | .16 | 2,047,000 | .13 | .06 | -.37 |
| Northern Cape | .08 | 250,000 | .18 | .00 | .21 |
| KwaZulu Natal | .18 | 2,862,000 | .15 | .09 | -.06 |
| North West | .15 | 1,167,000 | .19 | .01 | 1.35 |
| Eastern Cape | .11 | 2,331,000 | .41 | .00 | .61 |
| Limpopo | .11 | 1,918,000 | .18 | .17 | -.35 |
| Mpumalanga | .17 | 908,000 | .14 | .00 | -.23 |

Table 3.5

Variables and Data Sets

| PROVINCE | PROV_SPEND_03 | REG_VOTERS_99 | REG_VOTERS_04 | NAT_SPEND_02 | TOT_POP_01 |
|---------------|---------------|---------------|---------------|--------------|------------|
| W. Cape | 54,300,000 | 1,776,021 | 2,220,283 | 2.23 | 4,524,335 |
| Free State | 34,800,000 | 1,225,306 | 1,321,195 | 3.48 | 2,708,775 |
| Gauteng | 155,300,000 | 4,119,164 | 4,650,594 | 2.65 | 8,837,178 |
| Northern Cape | 11,300,000 | 368,205 | 433,591 | .23 | 822,727 |
| KwaZulu Natal | 246,500,000 | 3,309,162 | 3,819,864 | 4.68 | 9,426,017 |
| North West | 42,900,000 | 1,465,298 | 1,749,529 | 8.43 | 3,669,349 |
| Eastern Cape | 70,900,000 | 2,024,409 | 2,849,486 | 1.17 | 6,436,763 |
| Limpopo | 41,700,000 | 1,858,509 | 2,187,912 | 2.94 | 5,273,642 |
| Mpumalanga | 32,300,000 | 1,266,938 | 1,442,472 | 4.20 | 3,122,990 |



Table 3.6

Variables and Data Sets

| PROVINCE | TOT_POP_03 | POP_GROW_03 | PROV_GDP_02 | PROV_GDP_03 | DEM_GOVSERV_02 |
|---------------|------------|-------------|-------------|-------------|----------------|
| W. Cape | 4,615,965 | .02 | .0414 | .0335 | .0178 |
| Free State | 2,931,662 | .08 | .0396 | .0184 | .0230 |
| Gauteng | 9,142,158 | .03 | .0487 | .0307 | .0730 |
| Northern Cape | 1,011,774 | .19 | .0146 | .0177 | .0219 |
| KwaZulu Natal | 9,556,833 | .01 | .0278 | .0262 | .0026 |
| North West | 3,906,592 | .06 | .0164 | .0386 | .0001 |
| Eastern Cape | 7,244,554 | .11 | .0166 | .0268 | .0040 |
| Limpopo | 5,535,670 | .05 | .0420 | .0274 | -.0094 |
| Mpumalanga | 3,160,127 | .01 | .0275 | .0211 | .0005 |

Table 3.7

Variables and Data Sets

| PROVINCE | DEM_GOVSERV_03 | Δ _DEM_GOVSERV_04 | NNP_RACE_04 |
|---------------|----------------|--------------------------|-------------|
| W. Cape | .0131 | -.2640 | .1088 |
| Free State | .0780 | 2.3913 | .0082 |
| Gauteng | .0159 | -.7822 | .0076 |
| Northern Cape | .0007 | -.9680 | .0752 |
| KwaZulu Natal | .0037 | .4231 | .0052 |
| North West | .0036 | 35.0000 | .0043 |
| Eastern Cape | .0013 | -.6750 | .0063 |
| Limpopo | .0062 | -1.6596 | .0046 |
| Mpumalanga | .0079 | 14.8000 | .0046 |



Distributive effects are tested for by regressing the dependent variable provincial government spending for HIV/AIDS on the variable representing voter turnout and other independent variables. The variable voter turnout reflects the electorate's participation in the 2004 provincial election; notably, this variable is the primary independent variable. An electorate-voting pattern is reflected in the percentage of votes received by the New National Party that traditionally reflects the white vote and white voting patterns. The potential for race being a causal effect is further tested by representing the percent of a province's population that is white. Not only reflecting a voting pattern but reflecting collective activism as well, the variable latent group represents a facilitating institution's efforts to mobilise voters [constituents] to influence policy decisions. This is reflected in the increase in registered voters for the years 1999-2004. In addition to latent effects, the effect of a special interest group's activism is represented by the number of provincial representatives attending the Treatment Action Campaign's annual conference. As discussed earlier, income effect is tested with the use of the variable income and is extended to include need, as reflected by that variable indicating those not economically active. The variable representing the change in the demand for government services is introduced to test for any effect on government spending for HIV/AIDS due to increase demand for government services. That variable is but one of several variables introduced to explain the variability associated with social problems and issues, as discussed earlier. Other variables include education, the widespread prevalence of HIV/AIDS in a province, population growth, national spending determined by conditional grants from the national sphere of government, political party effects on government spending resulting from control of the provincial government by the ANC and growth of the provincial economy. Again, such variables are introduced to test for additional causes and effects for



provincial government spending on HIV/AIDS treatment programmes. Notably, a number of the variables may eventually be eliminated upon testing for multicollinearity. Moreover, upon a test of significance [t-test], some variables may be found to be statistically insignificant. This leads to further discussion of the statistical approach to be used to test the hypothesis that voters do not have the ability to influence public policy on spending on HIV/AIDS treatment programmes.

3.5 STATISTICAL APPROACH AND TECHNIQUES

The statistical approach for this dissertation first concentrates on the bivariate relationship and then look potential multivariate relationship between the dependent variable or provincial government spending for HIV/AIDS and those variables determined to be unbiased and efficient predictors. The statistical techniques that will be used include simple straightforward calculations encompassing descriptive statistics, followed by calculating the *beta* [slope] for simple linear equation. Thereafter, a number of additional independent variables will be considered but several will be eliminated through a test for multicollinearity. Once, the most efficient predictors have been identified, multivariate analysis will be undertaken and a multiple regression [model] will be developed to account for added causes and effect on the dependent variable. During the course of multivariate analysis, a test of significance will further eliminate those independent variables [predictors] that are insignificant and offer little or no explanatory effects on the dependent variable. Finally, a test of hypothesis will be conducted to determine if the beta calculated in the bivariate linear equation is truly representative of the statistical outcome.



3.5.1 Descriptive Statistics

To begin analysing the data sets shown previously, descriptive statistics will be used to summarise and organise the data into forms that will facilitate immediate understanding. A measure of central tendency that will be calculated, for example, includes the arithmetic mean. Measures of variability that will be calculated include the standard deviation and the coefficient of variation. The mean will indicate the average for a particular variable. Once the mean has been found, the standard deviation will be calculated to calculate the distance of the scores (a piece of data) from the [mean] measure of central tendency. In other words, there is a calculation of the dispersion of data around a particular mean. The coefficient of variation will facilitate an analysis of the variability of variables. The coefficient of variation expresses the standard deviation as a percentage of the mean. Finally, a standard score will be calculated to indicate the number of standard deviations a case is above or below the mean. This provides an additional reference point (the first being the mean) that will enable a unit of data to be compared to yet another unit of data

3.5.2 Bivariate Regression & The Coefficient of Determination

Following the elimination of those variables [predictors] that have the highest correlation relative to other predictors, and following the computation of descriptive statistics to organise data, a simple regression model or bivariate regression will be presented to estimate bivariate regression coefficients (Stiefel, 1990:13). This simple regression model goes right to the heart of the hypothesis in that it will examine the relationship between the dependent variable (government spending for HIV/AIDS) and the



independent variable (voter turnout). Generally, this is represented by the regression equation $Y_i = b_0 + (b_1 \cdot X_i) + e_i$ where:

Y_i = Provincial Government Spending for HIV/AIDS Treatment

X_i = Provincial Voter Turnout

b_1 = The Slope of the Regression Line and Represents the Change in Y divided by the Change in X

b_0 = The Intercept or Where the [Regression] Line of Best Fit Cuts Across the Y axis

e_i = An Error Term for Randomness and the Stochastic Relationship of Inefficient Predictors

Basically, the ordinary least squares method is applied and the sum of the squared errors is minimised. Notably, minimising the sum of the squared errors and solving for the associated normal equation is done to obtain estimators for the regression line. The two normal equations referred to are: $\Sigma(Y - b_0 - b_1 \cdot X) = 0$ & $\Sigma(Y - b_0 - b_1 \cdot X)(X) = 0$. The first equation derives the estimator for the Y intercept and the second equation derives the estimator for the slope (Steifel, 1990:22). Thus, the transformed equation for the Y -intercept is $b_0 = Y_{[\text{bar}]} - b_1 \cdot X_{[\text{bar}]}$ and the transformed equation for the slope is $b_1 = (\Sigma xy) / \Sigma x^2$. Consequently, estimates of actual values for independent variables can be obtained and a value for the (Y) dependent variable can be calculated. A question arises, however, as to the appropriateness of the regression line. Is it a good predictor of possible outcomes? For that reason, the coefficient of determination will be calculated.



The coefficient of determination is calculated by dividing the explained variation by the total variation. Total variation is the $\sum(Y_t - Y_{[\text{bar}]})^2$ - i.e., the difference between the actual value of Y and the mean of Y , squared and totalled for all observations. Explained variation is $\sum(Y_{t[\text{hat}]} - Y_{[\text{bar}]})^2$ - i.e., the difference between the value of each predicted Y along the regression line ($Y_{t[\text{hat}]}$) and the mean of Y , squared and totalled for all observations. Thus the coefficient of determination $R^2 = \sum(Y_{t[\text{hat}]} - Y_{[\text{bar}]})^2 / \sum(Y_t - Y_{[\text{bar}]})^2$. The calculated coefficient will range between 0 and 1. A high value will value close to 1 will indicate high degree of explained variation. Notably, the coefficient of determination is the equivalent of Pearson's (r) coefficient squared and likewise indicates the degree of association between the two variables. Values close to 0 indicate little linear or no linear association while a value close to one indicates a strong linear association between the dependent variable government spending for HIV/AIDS and the independent variable voter turnout (Healy, 1999:394).

3.5.3 Multicollinearity

Freund and Minton (1979:92-93, 112)) alerted the researcher that bias in regression coefficients can result from inadequate specification. Indeed, a *specification error* may occur when using too many variables and some of the variables are truly irrelevant. Thus a measure to be used towards minimising bias and inefficiency is to test for multicollinearity and eliminate those independent variables that are [statistically] shown to be irrelevant. Notably, multicollinearity exists when there is a correlation amongst predictors. Consequently, two steps will be taken to eliminate those variables that are irrelevant.



Firstly, a tolerance test or a test of the linear relationships amongst independent variables will be conducted. Notably, the test for tolerance involves calculating a proportion (Norusis, 1998:467-468). Values calculated, therefore, range from 0 to 1. The closer the variable is to 1, the more certainty there is that the variability in independent variable is explained by another independent variable. Conversely, the closer the variable is to 0, the more certainty there is that the independent variable is closely associated (has a relationship) with some other independent variable. By running the SPSS menu item *Collinearity Diagnostics*, the indicator will be calculated. Multicollinearity indicators for all prospective variables can be ranked, choosing those that are closest to the value 1.

Secondly, a secondary *backward elimination* (Freund & Minton, 1979:22) approach will be used where the t-statistic for each coefficient is determined. Thereafter, the regression coefficient with the minimum absolute t-values will be eliminated. Once a number of statistically insignificant variables are eliminated, the final result will be an optimal model to explain causal effects in provincial government spending for HIV/AIDS.

3.5.4 Multivariate Analysis

Howell (1989:134) stressed the appropriateness in asking: how well some linear combination of two, three, even four predictors (independent variables) influence a dependent variable. Indeed, there is no reason to limit the regression equation to the bivariate form. Table 3.2 offers numerous variables that offer explanation (some more than others) – variables having some perceived causal effect or linear relationship with the dependent variable provincial government spending for HIV/AIDS. The objective of multivariate analysis is to observe the effect of other variables on a bivariate relationship. Notably, the bivariate relationship was indicated on the preceding page. After specifying



the bivariate relationship, the objective is to measure effects of other significant variables (Healy, 1999:417). Thus, certain additional variables are fixed i.e., their value no longer free to vary. Importantly, the impact of any bivariate relationship can then be assessed. It, therefore, is natural that multivariate analyses follow bivariate analysis in order to acquire a greater understanding of the relationship between government spending and voter turnout. This, however, will take place upon eliminating, by testing for multicollinearity, those variables that are biased and inefficient.

The following multiple regression formula is offered as a starting point for describing the overall linear relationship between the dependent variable and multiple independent variables found to be the most efficient predictors. That multiple regression equation is (Healy, 1999:448):

$$Y = a + (b_1 \cdot X_1) + (b_2 \cdot X_2) + (b_3 \cdot X_3) + \dots + (b_n \cdot X_n)$$

where:

Y = The Dependent Variable Provincial Government Spending for HIV/AIDS

a = The Y -Intercept

$b_1, b_2, b_3 \dots b_n$ = The Partial Slope Indicating the Linear Relationship Between A Specific Independent Variable and the Dependent Variable

$X_1, X_2, X_3 \dots X_n$ = A Specific Independent Variable Found To Be An Efficient Predictor



Notably, the coefficients ($b_1, b_2, b_3 \dots b_n$) indicate partial slopes and represent the amount of change in Y for a unit of change in X . Importantly, effects of other independent variables in the equation will be taken into consideration. Indeed, the betas are partial coefficients of correlation that represent the effect of the associated independent variable on the dependent provincial variable government spending for HIV/AIDS.

3.5.5 Multiple Correlation and the Coefficient of Multiple Correlation

Once the linear relationship between each independent variable and the dependent variable has been established, the combined effects of all the independent variables will be determined by calculating the coefficient of multiple correlation (R^2). In other words, taking into consideration all of the variables in the multiple regression equation, to what extent [simultaneously] do all variables collectively explain the proportion of variance in the dependent variable? With the correlation coefficient being represented by R , as seen above with *Pearson's r*, in the case of multivariate analysis the following formula is offered to calculate to calculate R^2 :

$$R^2 = r^2_{y1} + r^2_{y2.1} (1 - r^2_{y1})$$

where:

R^2 = The Multiple Correlation Coefficient

r^2_{y1} = The Zero-Order Correlation Between the Y and X_1 Variables With the Quantity Squared

$r^2_{y2.1}$ = The Partial Correlation of the Y and X_2 , While Controlling for X_1 With the Quantity Squared



The first term r^2_{y1} is the coefficient of determination for the relationship between the dependent variable and, say, the first independent variable. Indeed, it represents the amount of variation in the dependent variable explained by that particular independent variable. Added to the amount of r^2_{y1} is an amount that represents additional explained variation due to a second independent variable, as represented by $(1 - r^2_{y1})$. Notably, $r^2_{y2.1}$ provides for controlling for the effects of the first independent variable. In this instance, the first independent variable is construed to be the primary independent variable provincial government spending for HIV/AIDS; the second independent variable could be any secondary efficient and unbiased predictor that is included in the multiple regression equation indicated above in section 3.4.4. Consequently, the coefficient of determination allows for evaluating the combined explanatory effects of, in this case, two independent variables on the dependent variable and serves to strengthen the information gained through having first examined the [primary] bivariate relationship (Healy, 1999: 417). Importantly, before solving for R^2 it is necessary to calculate r that represents partial correlation of Y and X_2 (the second independent variable), while controlling for X_1 . The formula for partial correlation where (r_{12}) equals the bivariate correlation between X_1 and X_2 (Healy, 1999:445-449).is:

$$r_{y2.1} = \frac{r_{y2} - (r_{y1})(r_{12})}{\sqrt{(1 - r^2_{y1})} \sqrt{(1 - r^2_{12})}}$$

Source Healy, 1999:456



3.5.6 Test of Hypothesis and Confidence Intervals for r

The relationship between the dependent variable and the independent variable can be further tested by a test of the null hypothesis $H_0: r_1 = 0$. In the case of this dissertation, the dependent variable is government spending for HIV/AIDS and the independent variable is voter turnout. After calculating a beta (b_1) through the process of bivariate regression, a subsequent question arises as to whether the calculated beta represents a true correlation between the dependent variable and the independent variable (Kleinbaum & Kupper, 1978:79). When b_1 is calculated, a figure close to 1 indicates a strong linear association between the dependent variable and the independent variable. The hypothesis here is that the electorate (reflected by voter turnout) does not have the ability to influence provincial government spending. It, therefore, is expected that b_1 is close to zero, possibly some negative number. Once b_1 has been determined, the question arises as to: how reliable is that particular coefficient as a predictor? Notably, a test of hypothesis for the efficiency of b_1 is analogous to a test of hypothesis for r . In other words, $H_0: r = 0$ is equal to $H_0: b = 0$ (Kleinbaum & Kupper, 1978:58-59, 88).

With a test of the null hypothesis for b_1 by way of testing for r_1 , there is a possibility that the distribution will be skewed. Consequently, *Fisher's Z transformation* is used to set confidence limits for testing the hypothesis that $H_0: b_1 = 0$. Fischer's transformation encompasses a log transformation as indicated in the flowing formula:

$$\frac{1}{2} \log_e(1 + r / 1 - r) \pm z_{1 - \alpha / 2} / \sqrt{n}$$



In the equation above, $z_I - \alpha / 2$ provides for a two-tail test to establish lower and upper limits at some particular confidence interval – i.e., 95% or 99% confidence intervals. The log transformation (\log_e) provides for the instance that a normal distribution is not evident. Notably, logarithmic transformation tables (Kleinbaum, & Kupper, 1978: 656-657) for $\frac{1}{2} \log_e (1 + r / 1 - r)$ are used to determine the upper and lower limits used to reject or accept the null hypothesis that beta (\mathbf{b}_1) represents a true correlation, or as hoped in the case of this dissertation that beta substantiates the hypothesis that voters can not influence public policy decision with regard to provincial spending for HIV/AIDS. Essentially, the null hypothesis is $H_0: \mathbf{r} = \mathbf{b}_1$ and that beta is representative of the calculated outcome. Alternatively, the alternative hypothesis would be $H_A: \mathbf{r} \neq \mathbf{b}_1$, indicating that the calculated beta is not a representative coefficient.

3.6 SUMMARY

Notably, the statistical techniques [calculations] indicated in the preceding sections will be accomplished using SPSS. The formulas, however, provide a foundation for understanding the data output and subsequent analysis. This chapter entailing the research methodology has discussed the research design. Indeed, the design is described as empirical analysis of secondary data pertaining to provincial government spending for HIV/AIDS treatment and voter turnout. A simple bivariate model will determine the relationship where the slope (\mathbf{b}) will reveal, say, a linear or non-linear relationship between the independent variable and the dependent variable. Through multivariate analysis, the influence of other variables on government spending will be taken into consideration. Whatever the outcome, caution is stressed. Admittedly, the sample size is small and the statistical approach is non-probabilistic. Notably, convenience sampling is



part of the research design. As stipulated early on, causal explanations may be supported by the data output and subsequent analysis (chapter 5) but whether the data is proof of causation is debatable. Before analysing the data it would be appropriate to, by a case study of perspectives, examine policy making for HIV/AIDS treatment. Where possible, rational choice theory (chapter 1) will be used as a framework for discussion.



CHAPTER 4

PUBLIC POLICY FOR HIV/AIDS

CASE STUDY OF SOUTH AFRICAN PERSPECTIVES

4.1 INTRODUCTION

Public policy on HIV/AIDS in South Africa can be examined and viewed from several perspectives. Perspectives give indication of viewpoints, commitment and understanding of the policy issue. Assuredly, an examination of the viewpoints and hence perspectives on HIV/AIDS indicates where the executive and the administration have come from, its present response to the epidemic and the work that remains to be done in the area of formulating and implementing policy. This chapter discusses perspectives and viewpoints using rational choice theory as a framework for discussion. More specifically, there is reference to the muddled state of affairs whenever it appears that there is indecisiveness, illisiveness and unclear behaviours and responses. Policymaking is discussed from macro and micro perspectives, noting the mindset of the executive and the influence of activists. Moreover, policy on HIV/AIDS is examined by looking at policy actions prior to and after 1994. Additionally, policy on HIV/AIDS with emphasis on activism and the median voter is discussed to further understand the characteristics of the electorate and how it has been assisted by a latent activist group such as the Treatment Action Campaign (TAC). Thereafter, there is discussion of political incumbents' willingness to communicate policy alternatives, recognising that they are indirectly accountable to the electorate. While policy may be influenced by the electoral process, there must be recognition that the electoral system has in turn been affected by



the epidemic. Finally, the unitary state could be effective in a coordinated response to the HIV/AIDS epidemic; but when the unitary state chooses not to respond, a conflict between the national and the provincial spheres of governments may be unavoidable. Sadly, at times the unitary state (i.e., the national government) must be motivated by court action to formulate a policy response to HIV/AIDS, as has been the case in South Africa.

Butler (2006) argued that turning out to vote is not a rational act. Rather, it is an exhibition of commitment to a political system and agreement to abide by the electoral outcome. What is implied is that there is a realisation by voters that they have little influence on the electoral outcome; nevertheless, constituents (in stable but slightly increasing numbers in South Africa) exercise their franchise to vote despite feeling powerless to influence public policy decision-making. Butler goes on to highlight that this increasing air of despair is to be expected for the local government municipal elections of 2006. Notably, the years and months leading up to municipal elections were not kind to the electorate. Political elites were characterised as parasites; liberation heroes and corporate elites monopolised the attainment of public office and unethical behaviour by party members went unchecked due to the electorate's wilful submission to their [so-called] betters (Butler, 2006).

Easily, voting may be thought of as "muddled," the antithesis of being rational. In South Africa, voters thrive in a state of poverty, confusion and despair to make what in their minds is a rational [voting] decision. It should not be forgotten that Lindblom (1959) viewed muddling as a science and therefore rational (perhaps better to say normal) to muddle along towards reaching a decision to exercise one's franchise to vote - discounting political incumbents having been slow to deliver on campaign promises,



definitive programs and sound public policy decisions relating to HIV/AIDS treatment in South Africa.

The science of muddling can be viewed to have been perfected in South Africa – especially as it relates to public policy decision making for rolling out an HIV/AIDS treatment programme. Consider the (DOH, 2000:5) 2000-2005 HIV/AIDS/STD Strategic Plan for South Africa. Section 1.1 of the plan noted that the document was not a plan for the health sector. Yet, time has shown that a definitive strategic plan (of attack) is exactly what is needed. Moreover, the same section noted that no single ministry would be responsible for addressing the HIV epidemic. Yet, what is needed is strong leadership and political will emanating from the Department of Health, accepting ultimate responsibility for policy making on HIV/AIDS treatment. Finally, the 2000-2005 plan seems to advocate many plans originating from myriad numbers of government departments, organisations and stakeholders, as opposed to one centralised plan and frame of mind on how to respond to the HIV/AIDS epidemic in South Africa. In retrospect and through to the year 2006, the response to the HIV/AIDS epidemic has been muddled – as characterised by political and bureaucratic attitudes ranging from denial to guarded response, and prescribed remedies of beetroot, olive oil, and most recently cautious distribution of antiretrovirals (ARVs).

For these reasons, this chapter will through a case study approach examine public policy decision making for HIV/AIDS treatment in South Africa. Indeed, the chapter is more of an “account” that endeavours to put this dissertation into context, thereby bringing clarity to the following chapter encompassing data analysis, perhaps confirming that the



electorate does not have the ability to motivate (by voting) its representatives to spend on HIV/AIDS programmes.

What have been the problems in making decisions on the matter of, as per Dye (2002), what government will or will not do – i.e., policy on HIV/AIDS from a macro and micro perspective? What was the state of the nation (with regard to HIV/AIDS and policy making) before 1994 thru to the post apartheid period and beyond? Has the unitary state, in some way, facilitated a muddled response to the epidemic? What systems have been affected by the inadequate response to HIV/AIDS – e.g., the electoral system and the party list system? With reference to collectivism, has the median voter been marginalised, thus supporting the thesis that voters are unable to affect government spending and public policy decision-making?

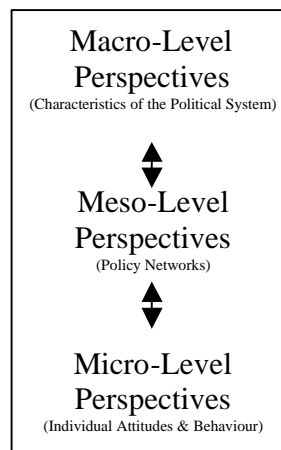
4.2 MACRO AND MICRO PERSPECTIVES ON POLICY MAKING

A perspective reflects a viewpoint, an outlook, or that which appears to be. Boeree (n.d.) posits that there are as many views, or perspectives of reality as there are conscious creatures. Moreover, diversity of perspectives [viewpoints] occurs due to genetic make-up, individual health, cultural background and experiences unique to individuals. The task here is to examine viewpoints that have nurtured policy making in response to HIV/AIDS. The examination tends towards macro-level theory and micro-level theory, while employing meso-level concepts to identify the policy networks they have provided for the development or lack of development of a response to HIV/AIDS. Evans (2001) identified the macro level as political system characteristics and the micro level as individual attitudes and behaviours – figure 4.1. A meso-level exists between the macro and micro level, and the meso-level represents policy networks that link the macro and

micro levels. Notably, levels are construed here to mean perspectives. The macro-level includes international system characteristics as well. For example, perspectives on policy making for HIV/AIDS at the Southern African Development Community (SADC) supra-national level [sphere] of government. Concern, however, in this dissertation is focused on the national and sub-national spheres of government.

Multi Level Perspectives and Relationships

Figure 4.1



(Source: Evans, 2001)

4.2.1 *Macro Perspective*

The examination of the macro perspective on policy making for HIV/AIDS encompasses focusing on the national sphere of government, represented by the viewpoint of the executive and characteristics of the political system that serves as the environment within which policy decisions are made. Firstly, at the national sphere of government the ultimate policy maker's (Thabo Mbeki) viewpoint has been and is key to the study of public policy decision making for HIV/Aids treatment. Indeed, the executive's viewpoint can be the impetus for action or the impetus for inaction. Osmanovic (n.d.) compiled a chronology of press documentation of Mbeki on HIV/AIDS. The president's numerous



remarks and his position on HIV/AIDS in the early days of his administration have been well documented. His position that “AIDS cannot be simply explained away by a virus but has to be explained in the broader context of Africa’s social and economic environment” caused pundits to label him confused if not muddled (Swindells, 2001). While there is an inclination to emphatically state that Mbeki said that HIV does not cause AIDS, it must be ascertained as to: What did the president actually say? While he may have never said HIV does not cause AIDS, a defining moment was the Time Magazine (Redmann & Hawthorne, 2000) interview where when asked “but would you acknowledge that HIV is a causal factor in Aids,” President Mbeki responded:

“I am saying sure, no problem at all, there may very well be a virus . . . What is fundamental is the AIDS. So much so that even in everyday language AIDS is said to be a disease. It's no such thing. AIDS is a syndrome. It's a whole variety of diseases which affect a person because something negative has happened to the immune system . . . I am saying we'll never be able to solve the AIDS problem.” [*sic*]

Did the President intentionally obfuscate a response to the question? If anything the discourse all but answers the question as to his position on HIV/AIDS. Indeed, there is deflection away from HIV as a causal factor and greater discussion of other ailments associated with AIDS (e.g., TB) and a less than clinical emphasis that AIDS is a variety of diseases. Rather, the interview comes across as the highly intelligent policy maker attempting to play the role of a physician – a role that the politician and policy maker is poorly equipped [untrained] to play. Why offer a diagnosis, when it would be safer to state the obvious? People are dying and there is a need for action – be it a cautious response due to the toxicity of antiretrovirals or, emphatically, a show of political will by rolling out a treatment programme forthrightly.



Indeed, a macro view is seen in the response of the executive – a viewpoint that drives the response to the epidemic at the national sphere of government. The following characteristics are evident: caution, avoidance, misinterpretation and misinformation of the pharmacology, diagnosis, regimen and treatment for HIV/AIDS. Recognising the muddled response as an indication of the state of the policy environment, that environment might then be characterised as being in [kindly] a mild state of confusion. Kindly said, despite all the confusion and muddleness, a rational decision on HIV/AIDS treatment is highly desirable. Nevertheless, commenting on the president’s interview, a muddled response is most descriptive of the president’s response; a muddled response is an appropriate description of the response to HIV/AIDS at the macro level.

4.2.2 Micro Perspective

At the micro (grass roots) level there is concern for the attitudes and behaviours of interest groups, as these attitudes and behaviours can have immediate impact on public policy decision-making. Difficulty, however, arises in accurately determining the attitudes of interest group members. A survey might be conducted but the dispersion of group members make it difficult to administer any type of measuring instrument. Gaining access to interest group members is the key challenge. Nevertheless, relative indication of their attitudes can be deduced by their outward actions – protestations, toy-toy, or their disrupting ministerial briefings for example. These actions can be viewed as methods of getting on (staying on) the agenda, one step in the policy making process. Nevertheless, these are behaviours that give clear indication, in the case of HIV/AIDS, that certain interest groups are not pleased with the executive’s response to the HIV/AIDS epidemic in South Africa. It is those behaviours that therefore reflect



collective action. More specifically then, what has the collective been doing to affect policy on HIV/AIDS treatment? The movement of the collective is most apparent in the form of the Treatment Action Campaign (TAC). Their client base can easily be considered to be the 11% of the population of nearly 44 million people believed to be infected with the HIV virus. Added to the micro perspective is the attitude and actions occurring in the sub-national sphere of government (more specifically KwaZulu Natal) where the conflict between the unitary state and provincial policy making were in conflict – i.e., unitarianism v. federalism.

As the Minister of Health stated (Business Day, 1999) that resources should be concentrated on preventative measures rather than spending to provide AZT and as the president fell short of proclaiming HIV/AIDS a national emergency (Afrol, 2001), it appeared that constituents and those infected with HIV/AIDS were powerless to influence public policy decision making to provide AIDS drugs. In other words, the electorate was caught in the middle [powerless] requiring the assistance of a latent group that would assist them (the electorate) as a collective to be effective in maximising their self-interests. This was no easy task as it became necessary for the TAC to challenge the South African government in the High Court over the policy to not make Nevirapine available to pregnant women with HIV. In December 2001, the TAC argued in the High Court that the government's irrational policy on combating HIV/AIDS was causing the rights of women and children to be violated. More specifically, the constitutional right of life, dignity and equality were being violated as a result of government's irrational approach to HIV/AIDS treatment. Indeed, the TAC had initiated the court action to compel government to provide AIDS drugs. Notably, the government's defence was not



helped by the revelation that the multinational pharmaceutical company Boehringer Ingelheim, the manufacturer of Nevirapine, had offered to provide the drug free of charge for five years – thus countering any argument by the Minister of Health that the government could not afford to provide drugs to HIV/AIDS infected individuals.

The high court case of the Minister of Health v. Treatment Action Campaign, CCT9-02, (2002) is actually considered to be a landmark case pertaining to socio-economic rights. Although the government had in place a programme distributing Nevirapine on a limited basis (10% rate of distribution), the court considered: 1) the government's policy of non-availability of Nevirapine and 2) whether indeed the government had to set out in a timely manner a national HIV/AIDS treatment programme to prevent mother to child transmission of the virus.

In short, the government was ordered to immediately remove restrictions on the use of Nevirapine and to implement measures through the public sector to expedite the use of Nevirapine (Community Law Centre, 2006). Oddly enough, the Minister's response was that the high court had stepped into the realm of policy making by ruling in favour of the TAC. The response, however, did not preclude the Minister from expanding government's HIV/AIDS treatment programme, at least, on the matter of providing Nevirapine to pregnant women. Much remained to be done, with regard to others infected with the HIV virus.

A micro perspective is also reflected in the conflict between national government and provincial government on public policy decision making for HIV/AIDS treatment. At least two provincial premiers had grown impatient with national government's (the



president's) muddled approach to policy for HIV/AIDS. Premier (IFP-KwaZulu Natal) Lionel Mtshali deviated from national policy to distribute on a limited (10%) basis Nevirapine to pregnant women infected with HIV. In February 2002, the Premier authorised Nevirapine to be distributed to all HIV positive prospective mothers, in order that mother to child transmission be prevented (Afrol, 2002). Notably, forty percent of the women giving birth in KwaZulu Natal were found to be HIV positive. The Premier's departure from the national government's cautious approach to HIV/AIDS policy marks one of the few occasions that provincial [state] government deviated from the unitary state. Characteristically, federalism and devolution of authority is not a prominent feature of South African government and politics. To avoid conflicts, chapter 3 of the Constitution (RSA, 1996) legislates for co-operative [intergovernmental] relations between the spheres of government, requiring the spheres of government to co-operate and foster mutual trust and good faith by:

1. Assisting and supporting one another.
2. Informing and consulting one another on matters of common interest.
3. Coordinating actions and legislation with one another.
4. Adhering to agreed procedures.
5. Avoiding legal proceedings against one another.

With emphasis on policy making, a precedent had been set with provincial government exercising independence from central government. In this instance there was added motivation to do so, with the KwaZulu Natal provincial government being an Inkatha Freedom Party (IFP) opposition provincial administration. A conflict between the two spheres of government (national v. provincial) again was evident in (this time) ANC Gauteng provincial Premier Mbhazima Shilowa breaking ranks to declare that provincial



hospitals and community centres would provide Nevirapine to prevent mother to child HIV transmission (Afrol, 2002).

Often, the analysis of policy pertaining to HIV/AIDS treatment focuses on actions (or inactions) of the president. The analysis fails to exam the true dynamics of policy making pertaining to HIV/AIDS. That is, a conflict between two spheres of government can impact the implementation of a policy and subsequent policy outcomes. Heuristically, policymaking and implementation extends beyond the political aura of any one individual. Analysis should recognize all associated dynamics. Consequently, while national government (the unitary state) desires to centralize authority and policy making, the role of the province (sub-national government) cannot be minimised, nor legislated into submission. Conclusively, if national government will not act on the policy problem, it should expect the next level (sphere) of government to act and formulate a policy response. Indeed, policy problems flow from a macro level perspective down through to the micro level; and it would seem that successful implementation occurs at that level (the micro), with it being so closely associated and located at the grassroots level.

4.3 POLICY BEFORE AND AFTER 1994

The AVERT Organisation (Berry, 2006) provided a chronology on HIV/AIDS in South Africa, noting that the first cases of HIV/AIDS were diagnosed in 1982. First identified in white gay men, soon after 1982 the virus was found to be prevalent in all areas of society. The AIDS crisis in South Africa, however, should be further demarcated by the year 1994. That year marked the succession of the ANC political party, the un-mantling of apartheid and the beginning of the demise of the National Party. What was the state of



AIDS policy under the old regime [National Party] and what has the state of HIV/AIDS policy under the new [ANC] regime?

4.3.1 Policy Before 1994

The year 1982 marks the beginning of the time-line for HIV/AIDS in South Africa, with the official reporting of the first two AIDS related deaths. As an indication of the policy response, at that time the Department of health assured that AIDS was a threat to homosexuals only. In 1985 the apartheid government responded by setting set up the first AIDS advisory group, with the immunologist Dr. Reuben Sher featuring prominently. Sher (Online News Hour, 1998) commented that: “AIDS was not a priority. Jobs, housing and political freedom were the priorities. The only benefit of apartheid (relative to the prevalence of HIV/AIDS) was that the government did not allow people to the north to come into the country and most of the local indigenous population did not travel to the north.”

As the literature is scoured in search of evidence of the work of Sher’s advisory group, it quickly becomes evident that no significant progress was made until 1990 when antenatal testing was conducted to ascertain an AIDS prevalence rate in pregnant women – at that time .8% (Berry, 2004). Indeed, a review of the history of HIV/AIDS in South Africa reveals that little was done on the matter of HIV/AIDS – as reflected in the historical overview by AVERT, the international AIDS charity (Berry, 2004). The decade 1980 and 1990 therefore could be characterised as a decade of apathy on HIV/AIDS. By 1993, the prevalence of the virus in pregnant women was found to be 4.3%.



Between 1982 and 1992, the apartheid government responded to the threat of an HIV/AIDS epidemic by focusing on mineworkers and the importation of the virus from neighboring countries. Notably, 130 mineworkers were diagnosed with the HIV virus, after which contracts of foreign mineworkers infected with the HIV virus were not renewed. A proposal by Dr. Marius Barnard to isolate HIV/AIDS carriers was considered as well. In 1989, Dr. Sher warned that HIV/AIDS could become a biological holocaust but the apartheid government did not immediately heed his warning (Online News Hour, 1998). In 1992 the National Aids Convention of South Africa (NACOSA) was formed to develop a national AIDS strategy. Considering Nelson Mandela's release from prison in 1990, policy making by the soon to be ousted apartheid government on the matter of HIV/AIDS may have seemed futile. With its willingness to concede and relinquish power, the apartheid government's HIV/AIDS problem would indeed become the ANC government's problem (AVERT, 2007).

Interestingly, in 2004 former South African president F.W. de Klerk caused an uproar when he commented that the apartheid government had a policy document (plan of action) on HIV/AIDS and that the policy had been shelved by the ANC (Reuters, 2004). A viewpoint was that ANC government had lost valuable times [years] in its fight against HIV/AIDS by not considering the policy on HIV/AIDS put forth by the last white South African government (DOH, October 2004). Nevertheless, the precursor to the ANC government's HIV/AIDS policy and strategic plan was the strategy put forth by NACOSA between 1992 and 1994, thus clearly delineating a concerted effort to address the HIV/AIDS epidemic in South Africa.



4.3.2 Policy After 1994: Post Apartheid Policy on HIV/AIDS

By 1994 there was worldwide awareness that modern humanity was faced with an epidemic that had the potential to match the black death of the middle ages. In light of this, South Africa had the unenviable task of orchestrating a regime change – a massive change in government, ushering in a new ruling party. Supposedly, while in exile the ANC conducted a number of meetings on HIV/AIDS (*epoliticsSA*, 2000). In 1995, NACOSA recommended that a national AIDS policy should emanate directly from the office of the president. Remarkably, there was some resistance from the executive – the first signs of scepticism emanating from president’s office. Scepticism would become most apparent during the presidency of Nelson Mandela’s successor Thabo Mbeki. In 1996 when NACOSA conducted a briefing on AIDS, a mere 14 Ministers of Parliament attended (Anonymous, 2004). Clearly, there was disdain for any administrative body held over from the apartheid government. In time, however, the successor to NACOSA would be the president’s advisory panel that had its first meeting May 2006 (ANC, 2000).

From 1994 on and from the first antenatal testing in 1990, the prevalence rate of HIV positive was steadily increasing – 0.8% in 1990 to nearly 28% by 2003 (Berry, 2004). Notably, antenatal testing of pregnant woman was used to estimate the rate of infection in the overall population. Thus with the coming to power of the ANC, factors impacting policy making on ANC were: 1) steady rise in the HIV infection rate, 2) the establishment of the first [ANC] presidential advisory panel, 3) a slow muddled response to the HIV/AIDS epidemic by the new ruling party, 4) activism by the Treatment Action Campaign (TAC) that led to the high court case compelling government to expediently roll out an HIV/AIDS treatment programme and 5) the



implementation of a 5 year (2000-2005) HIV/AIDS STD strategic plan that replaced NACOSA's HIV/AIDS strategy.

Based on antenatal testing, in 1994 the HIV/AIDS prevalence was 2.4%. More than 2% the pregnant women tested positive for HIV/AIDS. At that time, the Minister of Health was highly critical of the NACOSA HIV/AIDS strategy but no other policy was forthcoming from the new ANC government. In 1996 President Mbeki confirmed that indeed more than 2% of the total population was estimated to be infected with the virus. The infection rate in pregnant women was found to be 8%. In 1997 a ministerial committee on HIV/AIDS was established in Parliament. In the following year, 1998, the TAC was formed. Its chairman Zackie Achmat became a leading activist to influence policy making by abstaining from taking AZT unless 1) it was made widely available by government and 2) pharmaceutical companies offered AIDS drugs at a fair price to all infected individuals. By 1998 the prevalence rate was estimated to be nearly 23% based on antenatal testing (AVERT, 2007).

South Africa was found to have the fifth highest HIV prevalence rate in the world (AIDS Foundation, 2005). Until the HIV/AIDS/STD Strategic Plan (2000), there was no formal policy to address HIV/AIDS in South Africa. Up until 2000, the most prominent HIV/AIDS programme was the Partnership Against Aids launched in 1998. In 1999 free condoms were distributed and the educational campaign [Lovelife] was launched. As an indication of the muddled approach to policy formulation, in 2000 President Mbeki established an AIDS task force headed by the AIDS dissident Peter Duesberg who professed that HIV/AIDS drugs were the cause of the disease. Prevention emphasised lifestyle choices, focusing on homosexuality and drug addiction. President Mbeki



seemed more of a sceptic than an advocate for combating HIV/AIDS in South Africa. Asser (2000) wrote: “South African President Thabo Mbeki has become a champion for a small but vocal minority of medical and lay opinion which says HIV does not cause AIDS.” This was an opinion expressed by Asser upon the appointment of Peter Duesberg, a leading HIV/AIDS skeptic appointed to be an advisor to Mbeki. His comment in Parliament that “a virus cannot cause a syndrome” served to further muddle the policy response to HIV/AIDS in South (SAMRC, 2000). Scepticism arose from, at that time, the much-touted toxicity of drugs such as AZT and Nevirapine. Meanwhile, the Minister of Health had advocated a diet of beetroot, olive oil, potato and garlic, rather than proceeding to administer, or support the administering of potentially harmful antiretroviral drugs (ARVs). Responding to a high (25%) antenatal prevalence rate, the TAC and Dr. Harron Saloojee filed a motion in the South African [Pretoria] High Court to compel the South African government to make Nevirapine available to all women giving birth in government hospitals.

Still, a clear policy response was not forthcoming from the executive or the Minister of Health, with President Mbeki (2002) expressing doubt over the AIDS statistics that were released. By 2003, however, the government relented to popular pressure and committed to rolling out a comprehensive HIV/AIDS treatment plan (GCIS, 2003). In response, the Minister of Health (2003) formed a National Task Team chaired by the Medical Research Council’s Dr. A.D. Mbewu; the team was charged with coordinating the drafting of an operational plan to make ARVs widely available (Consumer Project on Technology, n.d.).



As an example of the lag time associated with policy implementation, it was not until August 2004 that the cabinet actually approved the distribution of anti-AIDS medicines in government hospitals. While the government had in principle committed to distributing ARVs through its hospitals, distribution was bogged down due to the requirement to register ARVs with Medicines Control Council to administer the allowable dosage to be dispensed. By November 2004, the cabinet finalised and approved the task team's operational plan. It, however, would be another year before at least one dispensing point would be operational in every health district; moreover, it would take five years to establish a dispensing point in every (284) municipality (Irin, 2006).

Despite government's long last commitment to roll out a treatment programme, policy is still nonetheless muddled, with the Minister of Health (to the present) advocating traditional remedies as treatment for HIV/AIDS. Moreover, between 2004 and 2006, policy implementation has had to overcome barriers associated with forming win-win partnerships with pharmaceutical companies, assisting and educating infected individuals on taking AIDS medicines, and reacting to the continued activism of the TAC that has been a relentless advocate for a definitive policy response action from government. A shift in corporate objectives has had to take place as well, as it relates to pharmaceutical companies. Profit maximization and ARVs has proven incompatible. In response, for example, Boehringer Ingelheim, the manufacturer of nevirapine had offered to provide the drug free of charge for five years. Additionally, in a regimen in the treatment of HIV/AIDS, an infected individual may have to take as many as four types of medicines 3 times a day. An argument has been made that dispensing HIV/AIDS medicines requires



counselling on the regimen of drugs to maintain the quality of life. Notably, many HIV/AIDS infected individuals will take drugs for added ailments such as Tuberculosis and side effects can occur (HIVdent, 2003). Finally, government still remains susceptible to legal actions from other interest groups that strive to influence government's policy on making HIV/AIDS drugs available to everyone no matter their socio-economic status. For example, 15 Westville prisoners filed a court petition to force the South African Correctional Services to provide them with ARVs (Anonymous, 2006).

4.4 ACTIVISM, AIDS AND THE MEDIAN VOTER

Besley and Burgess (2002) suggested that informed and politically active constituents motivate government to be responsive. Their work is most relevant for two reasons. Firstly, their work examined the responsiveness of government to poor and vulnerable groups. While HIV/AIDS does not discriminate, those most susceptible to being infected are the poor uninformed constituents. Secondly, their work is most relevant as a framework for discussing the median voter's activism because there is discussion of voters [constituents] being imperfectly informed about the actions of the incumbent politician. In short, those voters who are vulnerable and informed vote for the candidate that puts forth the most effort. Conversely, those voters who are vulnerable and least informed do not vote. Implicitly, those incumbents that are most active apply great effort in keeping voters informed. Finally, Rosen (1999:118) reminds that the median voter is situated in the middle of all voters. Half of the voters will prefer a policy alternative and the other half will reject a policy alternative. The median voter theorem then states that the outcome of majority reflects the preferences of the median voter – that voter, or those voters whose preference [preferences] lie in the middle.



Hereafter, the case study looks at policy in terms of: 1) the extent to which constituents in South Africa have been informed of HIV/AIDS policy alternatives; 2) who is the median voter and what is the nature of their [midline] preferences; and 3) the extent to which political incumbents have informed constituents of, say, their (the incumbent's) position on HIV/AIDS. The informed constituents will then be inclined to vote and the uninformed voter will be inclined to not vote.

4.4.1 Communicating Policy Alternatives

It is important to differentiate between government, say, using mass media to communicate HIV/AIDS awareness and policy makers communicating the government's policy alternatives in response to a national epidemic. While indeed the former educates on how to protect against being infected, the latter informs of the many alternatives contemplated by government to meet the needs of all citizens. The discussion here is not of government's media campaign as a tool to prevent HIV/AIDS. Rather, the discussion is of government informing of the actions the executive would take to implement programmes in favour of citizens regardless of party affiliation. Naturally, government is expected to intervene when there is a market failure. The private sector finds it unprofitable to provide a particular public good – e.g. national defence, or even AIDS medicines. The government is looked to for leadership on a dilemma that has far reaching implications. When the government of the day communicates clearly its policy alternatives, it maintains the support and confidence of its citizens. It is argued that from 1994 to 2000 the government of the day did little to communicate policy alternatives. In fact, from its inception the government, if anything, struggled to formulate policy on HIV/AIDS. The epidemic was, perhaps, not so high a priority of the Mandela



administration due to the need to get the new ANC government up and running. The government of national unity had adopted NACOSA's (a late apartheid regime advisory body) national AIDS plan (Hickey, Ndlovu & Guthrie, 2003:10) but a policy position was not evident, nor communicated until the Mbeki administration come into its own. Although the HIV/AIDS/STD Strategic Plan for South Africa (2000) had communicated a policy promoting prevention, treatment care and support, from 1998 onwards (from the beginning of the Mbeki administration) policy communicated alternatives ranging from what government should do in response to conspiracy theories against Africa. As well, there were policies reflecting denial that the HIV virus causes AIDS and policies indicating technical and financial concerns for rolling out a national HIV/AIDS treatment programme. Indeed, policy alternatives communicated reflected vacillation on the part of the executive. Mbeki was accused of being trapped in an intellectual boundary defined by coercive and racist arguments typical of late apartheid public health policy (Mbali, 2002). All in all, the senior most policy maker (the president) had succeeded in muddling the message [communications] indicating government's responsiveness to the HIV/AIDS epidemic.

4.4.2 The Median Voter and Midline Preferences

With the median voter having preferences that lie in the middle of a set of all voter preferences, several questions are raised. Firstly, who is the median voter and what are the characteristics of the median voter? Secondly, what is the nature of their midline preference – policy response desired? Is it truly a preference that government should, for example, expediently roll out an HIV/AIDS treatment programme? Or in keeping with elite [model] theory, are voters apathetic and ill informed of public policy on HIV/AIDS



(Dye, 2003:23)? In other words, are voters, and for this discussion the median voter, passive and unconcerned over public policy decisions pertaining to HIV/AIDS treatment.

Willan (2004:2) found it curious and odd that the ANC enjoyed continued support despite broad criticism of its policies. The about turn in 2003 on AIDS policy (being forced to roll out an HIV/AIDS programme for pregnant women) no doubt has contributed to continued support from the electorate. Assuredly, the median voter(s), of who the majority are ANC supporters, has in some way been affected either directly or indirectly by HIV/AIDS. As reporting of declared AIDS related deaths become more definite and proficient, the median voter will be most like see AIDS as a political issue. The threat to the ANC will then come from the median voter (an electorate) increasingly dissatisfied with government's inadequate response to a national epidemic of HIV/AIDS in South Africa?

When the HIV/AIDS epidemic was in its early stages and on the rise (1990-1997), citizens prioritised unemployment and poverty as the most important issues requiring government attention, intervention and policy formulation. With an infection rate greater than 20% of the population and on the rise, a shift in the median voter's midline preference is occurring. As the rate of infection increases, the midline preference will shift reflecting preferences for policies and programmes to combat HIV/AIDS and maintain quality of life for those infected with the AIDS virus. Moreover, the median voter will tend to be more informed and less apathetic as the rate of infection increases. Political and policy elites should then become more responsive to the electorate, thus strengthening the relationship between HIV/AIDS, democracy, citizenship and governance.



4.5 POLITICAL INCUMBENTS AND INFORMED CONSTITUENTS

The problem that arises in discussing HIV/AIDS in terms of political incumbents and their keeping constituents informed is that the epidemic then becomes politicised. A desire to not politicise HIV/AIDS is perhaps one reason for political candidates not informing the electorate of a policy [alternative] position. In South Africa, the optimal policy alternative would be to roll out an all-inclusive HIV/AIDS treatment programme. Over the local government elections of 2006, hardly a word was heard of incumbents' political and policy position on HIV/AIDS. In Trevor Manuel's 2006 Budget speech, the most one can glean of the executive's policy on HIV/AIDS is that: "192 health facilities in South Africa have HI/AIDS treatment facilities and the government is strengthening AIDS programmes (Manuel, 2005:29)." There appears to be a disconnection between political elites and their communicating policy alternatives for HIV/AIDS.

Strand, Matlosa, Strode and Chirambo (2004) examined the potential for democratic governance to be marginalised by a "non-response" to the HIV/AIDS crisis in South Africa. That South Africa lacks a HIV resilient society, it can be argued, enables incumbents to address HIV/AIDS with minimal enthusiasm, resulting in their not revealing their policy positions on the epidemic. Thus, the electorate does not hold decision makers accountable due to the absence of resiliency. If it were not for the activism of the TAC, the executive's response may have been far different than it has been.

Theoretically, there is no subsequent reason for incumbents to inform constituents of policy alternatives on HIV/AIDS because their constituents do not make demands of the political representative. The threat of not being re-elected is less plausible –



especially in an electoral system that is based on party lists. Indeed, this alludes to the hypotheses of this dissertation that the electorate is unable to affect policy decisions and influence government to spend on HIV/AIDS treatment programmes. It should then be expected that HIV/AIDS has impacted the electoral system and the management of elections in South Africa.

4.6 HIV/AIDS AND SYSTEM EFFECTS

Practically, no subsystem of the infrastructures of government and society has gone unaffected by the HIV/AIDS epidemic. Kelly (2000:7, 43), for example, noted that in many countries the epidemic has undermined the educational system – e.g., reduced teaching capacity, decline in community support, inadequate planning and financial support. Moreover, the epidemic has affected personnel, disrupted the system itself by causing uncertainty, bewilderment and paralysis in the educational system. Taylor (2004) documented the affect of HIV/AIDS on health care systems, noting requirements of follow-up services for adherence to treatment, management of opportunistic infections, research and laboratory support, and mechanisms to insure access to quality treatment. The need to balance the protection of patents and intellectual property rights with the rights of infected individuals has impacted procurement systems for HIV/AIDS related medicines and supplies (Taylor, 2004:11).

Indeed, almost every subsystem conceivable has been affected by the HIV/AIDS epidemic. Here, however, the subsystem of greatest concern is the impact of HIV/AIDS on the electoral system. Sight should not be lost of the focus and thesis of this dissertation – notably, the effect of the voting franchise on policy decisions and spending for HIV/AIDS. Can the voters influence government spending? Notably, the hypothesis



is that voters cannot influence government spending for HIV/AIDS and therefore not able to influence public policy decisions.

Firstly, it is suggested here that submission of party lists (RSA 1998:22), the manner in which political candidates achieve office, contributes to voters [the electorate] not being able to influence policy making in South Africa. In other words, the electorate does not choose or vote directly for their representative. Rather a vote is cast for a [party] list put forth by a contesting political party. This is characterised as, albeit, a “national list proportional representation system” that leads to the elected representative being first accountable to their party and accountable to their constituency secondly. Although Reynolds (1997) claimed that this type of proportional representation system was crucial in creating an atmosphere of inclusiveness and reconciliation necessary for the establishment of a post apartheid government, arguably such a system marginalises voters and raises party allegiance above maximising the interest of the incumbent’s constituency. The incumbent remains only partially accountable and need not respond definitively to calls from the electorate for an all-inclusive national HIV/AIDS treatment programme.

Consequently, accountability is compromised by a party list proportional representation system, along with added affects resulting from the HIV/AIDS epidemic. Strand *et al.* (2004:76, 82), for example, noted that voters were negatively affected and hindered from exercising their franchise to vote. Firstly, with increasing numbers of voters being infected with the virus, special arrangements must be made to accommodate incapacitated voters. The electoral administration (the independent electoral commission) will need to develop the capacity to service sick bed ridden voters, less



their (HIV infected voters) disenfranchisement becomes the norm, accepted and commonplace. Undoubtedly, their not being able to vote would be unacceptable in a stable and legitimate democracy. Secondly, the increase in deaths attributed to HIV/AIDS would negatively affect the voter's roll. The number of voters on the roll would be inaccurate and potential fraudulent use of ghost voters would skew the outcome towards unscrupulous political candidates. Thirdly, while in South Africa the number of elected candidates succumbing to HIV/AIDS has been minimal, there is concern (in the Southern African region as a whole) that the replacement of sick or deceased representatives (either by bi-elections or a listed candidate serving as a replacement) undermines, if not destabilises, the representivity of the body politic. In other words, the changing political body of politicians consist of representatives other than those substantiated by the electorate. Notably, proportional [constituency] representation, especially in South Africa, is argued here to be compromised by the use of party lists. Replacement of elected representatives before scheduled national and local elections further compromises and marginalises the electorate, rendering it ineffective in influencing public policy making.

With regard for developing policies alternatives and government institutions between 1992 and 2004, it is striking that Strand *et al.* (2004:133) noted that:

. . . extraordinary leadership qualities are required from the political establishment to put HIV/AIDS on the political agenda at an early stage in the epidemic . . .

The irony of the statement is that over those years, in reality that the political establishment, the government of the day, had done all it could to keep HIV/AIDS



off the political and policy agenda. It is unfortunate, but Strand *et al.* (2004) appears to “whitewash” the political establishment rather than condemn it for the many controversial statements that emanated from the executive’s administration. Whether more harm than good is debatable but in light of the increasing HIV/AIDS infections rate, clearly up until the TAC’s court action there was an absence of policy making and political will to combat HIV/AIDS.

In contrast, the 2004 election reflects democracy in the electioneering mode (Strand *et al.*, 2004:132) when there is concern for HIV/AIDS amongst the electorate. What is questionable was the distrust between parties that prevented, say, political elites (Mbeki, Leon, Buthelezi, DeLille, and Van Schalkwyk) from debating, communicating, and informing the electorate on the matter of HIV/AIDS prevention and awareness. Consequently, there are a multiplicity of policy proposals that fall by the wayside once the elections are concluded due disunity and emphasis of party specific platforms; no significant policy alternative is ever implemented and the electioneering mode gives way to a day-by-day operational and administrative mode. To this end, the electorate is unable to influence public policy and government spending on HIV/AIDS. Essentially, the HIV/AIDS epidemic has rendered the South African electoral system ineffective, with the epidemic being an issue that is skirted and avoided as a campaign issue. Over time, the government has moved from denial, to avoidance, to (with the implementation of HIV/AIDS treatment for pregnant women) cautious implementation.



4.7 THE UNITARY STATE AND HIV/AIDS

Characteristically, a unitary state (no matter the number of spheres of government) is governed as a single entity. The national sphere of government dictates policy for central government and all other sub-national spheres of government – i.e., provincial and local government. Unarguably, before 1994 South Africa would have been described as a unitary state. National government and therefore the executive held tight control over all aspects of public administration and policy. In reference to post-apartheid South Africa and 1994 onwards, debate looms as to whether South Africa is a unitary state or a federal state, devolving authority and policy making to sub-national spheres of government. In reality, South Africa is a relaxed form of the unitary state, with traits of limited federalism on matters that national government declines to address.

If there is indeed a mandate for a unitary state, that mandate emanates from Chapter 3 of the Constitution (RSA, 1996) that legislates for cooperative government. Notably, section 41(h) states that legal proceedings between spheres of government should be avoided. In other words, disputes between the national and sub-national spheres of government should be argued in a forum other than the court system. Indirectly, the dispute between provincial government and national government on HIV/AIDS treatment (Afrol, 2002) was settled by the high court, with the Minister of Health being challenged by the TAC and the subsequent ruling in favour of the TAC (*Minister of Health v. Treatment Action Campaign*, 2002). National government had no choice but to roll out an HIV/AIDS treatment programme following the high court ruling.



It was not that the national sphere of government had deferred policy making to provincial government. Rather, national government's inaction on HIV/AIDS exemplified the expanded definition offered by Dye (2002:1). While defining policy, simply as what government will do or chooses to do, policy may also be defined as what government chooses not to do. Indeed, inaction by government is a conscience policy decision that, in the case of the [relaxed] unitary state in South Africa, leads to conflict between varying spheres of government.

Ironically, the state (Department of Social Development, 2006) views its role as that of a coordinator and integrator of stakeholders and resources in the fight against HIV/AIDS. Its role in providing social protection to those infected and affected is one that is constantly under attack and subject to the scrutiny of the watchdog special interest group the Treatment Action Campaign (TAC). Although there is commitment now to implement, for example, home based/community care, this may not have been a policy alternative without the oversight of the TAC and civil society in general.

Nevertheless, the unitary state can be highly effective in fighting HIV/AIDS when there is an aggressive definitive policy response. Gauri and Lieberman (2004) spoke of the politics of epidemics associated with South Africa's response to HIV/AIDS, as compared to Brazil. Clearly, in 1985 Brazil (the state) had made a commitment to formulate and implement an HIV/AIDS policy. In contrast to South Africa, a bureaucratic frame of mind on HIV/AIDS was established early on. In 1985 Brazil established an HIV/AIDS programme within the Ministry of Health. That is not to say that since the programme was administered without bureaucratic difficulties. There were eight name changes to the HIV/AIDS programme and AZT was not provided free to all patients until 1991.



Importantly, HIV/AIDS policy was centralised in the Ministry of Health and the ministry had significant autonomy in mobilising manpower and resources to respond to the epidemic nationally.

It is truly remarkable that Brazil realised the threat and responded forthrightly as early as 1985. In contrast, it was not until 1994 when the ANC government came into power that, at the least, significant discourse on HIV/AIDS began to take place. Conclusively, in the case of Brazil the unitary state was instrumental in implementing a national HIV/AIDS policy, while in South Africa the unitary state has wavered on formulating and finally implementing a policy on HIV/AIDS.

4.8 SUMMARY

It is questionable whether the electorate can influence public policy by way of the ballot box. The research question in this dissertation is concerned, specifically, with the electorate's ability to influence public policy, as reflected by government spending. The hypothesis here is that the voters do not have the ability to influence government spending for (public policy) HIV/AIDS. What is most interesting about the electorate in South Africa is its continued allegiance, despite not being able to effect or influence electoral outcomes. With regard for HIV/AIDS relative to political incumbents, policy makers and the electorate both appear to be "muddled" in their response to HIV/AIDS; incumbents are muddled in their communicating policy alternatives to constituents. Constituents are muddled in their persistent support of representatives that are only indirectly accountable due to an electoral system based on party lists.



The muddled state of affairs contributes to a variety of perspectives on the matter on HIV/AIDS in South Africa. From a macro perspective, the executive's (President Mbeki's) initially illusive and unclear response to the HIV/AIDS epidemic characterised the overall response of the political system – that political system being the national sphere of government. Moving from a macro perspective to a micro perspective, the attitude and behaviour of the collective in the form of the activist Treatment Action Campaign (TAC) was responsible for motivating the executive to formulate an HIV/AIDS treatment policy for, at least, pregnant women to prevent mother to child HIV virus transmission. The individual may be powerless to affect HIV/AIDS policy but a special interest group such as the TAC can be effective in mobilising the collective to affect policy making. That in recent times the TAC has been in consultation with Deputy Mlambo-Ngcuka, concerning a new HIV/AIDS strategic plan for 2007/11, indicates that the collective through the TAC is providing some input into the national HIV/AIDS policy (Cullinan, 2006).

Another way [perspective] of looking at HIV/AIDS policy is by examining policy before and after 1994. Notably, in the latter days and reign of the apartheid regime (those days coinciding with the first reported HIV/AIDS cases) there was little or no response to the epidemic. In the early 1980's the disease was considered to be a gay disease. Unfortunately, when the ANC came into power, it not only had to establish a new system of government, it also had to recognise and respond to an HIV/AIDS prevalence rate that was increasing at an alarming rate from year to year. Truly, the ANC had inherited a deadly legacy from the (apartheid) National Party. Shortly after the turn of the new



millennium, a policy response was forthcoming in the form of the HIV/AIDS/STD Strategic Plan (DOH, 2000).

The research question [dissertation] is extended to consider whether the median voter can influence public policy. The median voter is that voter whose preferences lie in the middle of a spectrum of preferences. That preference then represents the preference of the majority of voters. Do political incumbents strive to keep the median voter informed of policy alternatives? Considering that political incumbents are indirectly accountable to the electorate, they can hesitate to be responsive to constituents. Why? Political incumbents need only be responsive when seeking re-election. This is a consequence of South Africa's party list system, where voters vote for the party's listed candidates and not individual prospective representatives. Thus, in between elections incumbent's first allegiance will be to their party; come elections, incumbents will actively canvas to secure votes for the party through, for example, campaign promises – increased social welfare programmes and benefits.

Finally, the HIV/AIDS epidemic has the potential to negatively affect the electoral system. For example, those infected with the virus will require special voting facilities. As well, the voting register could be subject to manipulation, as registered voters succumb to the disease – ghost or false ballots submitted on behalf of deceased voters on the roll. Consequently, the role will not reflect the actual number of [live] voters on the roll. These adverse affects have the potential to destabilise the electoral process, further inhibiting the electorate's ability to affect policy even when it exercises its franchise to vote. This will be especially true for smaller opposition parties whose power to influence policy is exemplified by alliances and coalitions with other small parties.



Conclusively, it could be argued that the unitary state might benefit from a destabilised electoral process. The unitary party of the day would continue to maintain control, as has been the case in South Africa. This is a paradox in that on one hand the unitary state can promote stability in its new young democracy. On the other hand, the unitary state contributes to the argument against a one party state. Questions remain, however, as to whether the unitary state 1) will or intends to make appropriate policy decisions in favour of its marginalised citizens, and 2) whether the unitary state will intends to inhibit sub-national governments from making policy on, for this matter, HIV/AIDS - especially on those occasions when national government chooses not to make policy? A conscious decision by national government to not respond with a policy should not prevent provincial governments from developing and implementing policy alternatives.



CHAPTER 5

CASE DATA ANALYSIS

CAUSES & EFFECTS FOR PROVINCIAL SPENDING ON HIV/AIDS

5.1 INTRODUCTION

In chapter 3, section 3.3, variable sets were presented that included data pertaining to nine (9) provinces. This chapter 5 encompasses an analysis of that data, with the aim of either confirming or refuting the hypothesis that voters are unable to influence public policy on provincial government spending for HIV/AIDS. As in other research, the expected direction, negative or positive, and effect on the dependent variable for provincial government spending is indicated. Linear relationships of a positive or negative nature are realised upon running a variety of bivariate and multivariate regressions in order to arrive at an optimal model. Correlation coefficients indicate the strength of the linear relationship and coefficients of determination indicate the degree of predictability of the independent variable. Test of hypothesis are conducted to further confirm that there is a linear relationship between two variables in the optimal bivariate model. The chapter concludes by refuting the hypothesis, while commenting briefly on policy implications.

Husted and Kenny's approach (1997:64) to empirical analysis was to first state the expectations of their theory. In other words, they would state a theory (or a hypothesis) and their subsequent data analysis would go on to substantiate or refute their expectations – i.e., their theory. In that manner, this dissertation examines the theory that there is some relationship between voter turnout and public policy making for HIV/AIDS



treatment. Notably, policy making at the provincial sphere of government for HIV/AIDS is understood to be reflected by provincial government spending for HIV/AIDS. The hypothesis stated earlier was that voters do not have the potential to influence public policy decisions when they exercise their franchise to vote. It is not implied that there is not a relationship. Rather, the strength of the relationship between voters and public policy decision-making remains to be determined but nevertheless expected to be minimal. Upon this data analysis, there may very well be a near negative relationship between voter turnout and national and provincial spending for HIV/AIDS. It is not expected that there would be a strong positive relationship between the two variables. In other the words, in keeping with the hypothesis, an increase in government spending should not be expected to be a significant result of voter turnout. There should, perhaps, be some small influence of the variable VOTE_TURN_04 on PROV_SPEND_03. This is measured by examining the bivariate relationship by way of ordinary least squares (OLS) or simple least squares calculated to determine the relationship between the two primary variables – namely, VOTE_TUR_04 the independent variable and PROV_SPE_03 the dependent variable. Additional calculated parameters include the correlation coefficient (R) to evaluate the strength of the linear relationships.

The data analysis should be qualified by noting that increases in government spending will occur in anticipation of and prior to elections – say, the 2004 elections – in order to garner political support of political incumbents. However, once elected there is uncertainty as to the responsiveness of incumbents due to the party list electoral system that promotes first to the incumbent's political party and then to constituents.



Other effects [variables] are measured against national and provincial spending as well. Regression coefficients will give indication of the strength of the relationship between an independent variable and a dependent variable in the case of bivariate regression, and the strength of the relationship between several independent variables on the dependent variables in the case of multivariate regression. Data output relating to tolerance and multicollinearity (Norusis, 1998:467) will be analysed to determine the strength of any linear relationship among independent variables. A value close to zero [0] indicates that a variable is linear to another independent variable. It might then be necessary to exclude the variable from regression model.

Reference is made to Table 3.2 that includes 23 independent variables thought to have some predictive-effect on public policy decision making as reflected in government spending for HIV/AIDS. In the case of bivariate and multivariate relationships, the ultimate goal is to build a model that offers explanatory effects for government spending on HIV/AIDS. Several regression models will then be considered, some variables in the models eliminated, and some models deemed inadequate towards drawing a conclusion. For the bivariate regressions to be calculated using SPSS, the following equation is offered:

$$Y_i = \mathbf{b}_0 + (b_1 \cdot X_1) + e_i$$

And for the multivariate regression the following equation is offered:

$$Y = a + (b_1 \cdot X_1) + (b_2 \cdot X_2) + (b_3 \cdot X_3) + \dots + (b_n \cdot X_n)$$



where:

Y = The Dependent Variable Provincial Government Spending for HIV/AIDS

a/b = The Y -Intercept

$b_1, b_2, b_3 \dots b_n$ = The Partial Slope Indicating the Linear Relationship Between A Specific Independent Variable and the Dependent Variable

$X_1, X_2, X_3 \dots X_n$ = A Specific Independent Variable Thought To Be An Efficient Predictor

Notably, the equations above were presented and discussed in chapter three. The variables were defined in sections 3.4.2, 3.4.3, 3.4.4, and 3.4.5. Indeed, section 3.4 of that chapter discussed the statistical approach and techniques to be used, thereby finalising this approach performing calculations using SPSS and subsequent data analysis. As a review:

- Descriptive Statistics are calculated for all independent variables. Parameters include minimum-maximum, the mean and standard deviation.
- Linear Regression (Bivariate Relationships): Ordinary least squares (OLS) or simple least squares are calculated to determine the relationship between the two primary variables – namely, VOTE_TUR_04 the independent variable and PROV_SPE_03 the dependent variable. Other bivariate relationships are examined as well. Additional calculated parameters include the correlation coefficient (R) to evaluate the strength of the linear relationships.



- Multiple Regression (Multivariate Relationships): Where in OLS the relationship between two variables is examined, in predicting the value of the dependent variable, say, PROV_SPE_03 or any dependent variable for that matter, the dependent variable is regressed on a number of independent variables (multiple linear regression), recognising that in the real world there are many factors impacting and influencing a dependent variable. While searching for the optimal regression model, there is an examination of tolerances to eliminate variables that are being influenced by other independent variables
- Testing the Regression Hypothesis (Test of Hypothesis): A test of hypothesis is run to determine the representative-ness of the regression straight-line. Is the regression [straight] line adequate for predictability? As mentioned earlier, with the sample size being will be small (nine) and with no population to consider the test of hypothesis is construed to represent the predictability of the sample regression.
- Test of Hypothesis for Reliability of Correlation Coefficient: As a further test of the primary bivariate regression *Fisher's Z transformation* (see chapter 3, p.82) is used to test the reliability of the correlation coefficient R . Thus, a rejection of the null hypothesis indicates R is not a significant predictor of the linear relationship between VOTE_TURN_04 the independent variable and PROV_SPEND_03 the dependent variable.
- Conclusion Drawn from Outputs: This chapter [five] concludes by drawing a final conclusion as to the predictability of bivariate and multivariate regression models. The hypothesis that voters do not have the ability to influence government spending for HIV/AIDS will be confirmed or refuted.

Heretofore, each section that follows presents the data output that are the result of statistical techniques described above. Moreover, the data output are discussed, analysed and interpreted to draw a final conclusion relating to the stated hypothesis.



5.2 DESCRIPTIVES

Table 5.1 presents SPSS output summarising descriptive statistics for variables defined in Table 3.2. The mean provincial voter turnout for the 2004 elections was 1.7 million voters with a standard deviation close to 950 thousand voters. Notably, in 1999 the mean for registered voters was 1.9 million and in 2004 the mean for registered voters increased to 2.29 million voters. The average increase in voter registration of nearly 19%, along with average provincial special interest [TAC] activism of 11% may indicate some latent force at work enabling the electorate to influence policy making through the voting franchise. With that in mind, the minimum voter turnout amongst South Africa's nine provinces was nearly 319 thousand voters and the maximum turnout was more than 3.4 million voters. The vast difference between the minimum and the maximum is a reflection of the distribution of the population, with a remote province being sparsely populated and a more central province being densely populated. In 2001, the mean total provincial population (age 15 – 65) was 4.98 million; by 2003 the average provincial population had increased to 5.23 million people, on average growing 6% over 2 years.



Table 5.1

SPSS Output Descriptives

| | N | Minimum | Maximum | Mean | Std. Deviation |
|-----------------------|---|----------|-----------|-------------|----------------|
| VOTE_TURN_04 | 9 | 318702 | 3408308 | 1700349.11 | 948632.222 |
| WH_RACE_01 | 9 | .02 | .41 | .1112 | .12360 |
| EDUCA_01 | 9 | 145344 | 2055855 | 871780.56 | 585930.247 |
| INC_01 | 9 | .06 | .30 | .1848 | .08358 |
| AIDS_PREV_02 | 9 | .04 | .18 | .1301 | .04728 |
| NEED_04 | 9 | 250000 | 2862000 | 1480333.33 | 846793.363 |
| LAT_GROUP_04 | 9 | .08 | .41 | .1896 | .09448 |
| SPEC_INT_01 | 9 | .00 | .49 | .1122 | .16071 |
| CHANGE_PROV_GDP_03 | 9 | -.54 | 1.35 | .0496 | .59904 |
| PROV_SPEND_03 | 9 | 11300000 | 246500000 | 76666666.67 | 75760279.831 |
| REG_VOTERS_99 | 9 | 368205 | 4119164 | 1934779.11 | 1135971.570 |
| REG_VOTERS_04 | 9 | 433591 | 4650594 | 2297214.00 | 1305563.893 |
| NATL_SPEND_02 | 9 | .23 | 8.43 | 3.3344 | 2.36410 |
| TOT_POP_01 | 9 | 822727 | 9426017 | 4980197.33 | 2843162.358 |
| TOT_POP_03 | 9 | 1011774 | 9556833 | 5233926.11 | 2908324.203 |
| POP_GROW_03 | 9 | .01 | .19 | .0623 | .05691 |
| PROV_GDP_02 | 9 | .0146 | .0487 | .030511 | .0128755 |
| PROV_GDP_03 | 9 | .0177 | .0386 | .026711 | .0069449 |
| DEM_GOVSERV_02 | 9 | -.0094 | .0730 | .014833 | .0244581 |
| DEM_GOVSERV_03 | 9 | .0007 | .0780 | .014489 | .0243638 |
| CHANGE_DEM_GOVSERV_03 | 9 | -1.6596 | 35.0000 | 5.362837 | 12.2266389 |
| NNP_RACE_04 | 9 | .0043 | .1088 | .024978 | .0389391 |
| Valid N = | 9 | | | | |

Source: SPSS Output Computed for Descriptive Statistics

On average, provincial expenditures for HIV/AIDS in 2003 amounted to R76.6 million rands, with a standard deviation of R75.7 million rands. The minimum amount spent by a province was R11.3 million rands and the maximum amount spent by a province was R246.4 million rands. Conditional grants made to provinces in 2002 represent national spending efforts to alleviate HIV/AIDS. On average, in 2002 the national government provided R3.3 million rands in grants targeted for HIV/AIDS. The standard deviation



was R2.4 million rands, with a minimum grant of R .23 million rands and a maximum grant of R8.4 million rands. Notably, by 2002 the mean HIV/AIDS prevalence rate was 13% for the nine provinces. In other words, it was estimated by way of antenatal testing that on average 13% of a province's total population was infected with HIV. The statistics summarised above are sourced or derived from table 5.1.

Education, income, need and the demand for government services might be contributing factors to the HIV prevalence rate. In 2001 the mean number of individuals with less than a standard 10 education was nearly 872 thousand. The minimum number of individuals with less than a standard 10 education in any one province was a little more than 143 thousand while the maximum number was more than 2 million. On average, close to 19% of a province's population (age 16-65) had income ranging between R400 and R800 rands per month in 2001. Minimum and maximum levels were 6% and 30% respectively. Indeed, in one province 30% of the population had income between R400 and 800 rands per month. In terms of 2005 (USD) dollars, 30% of a provinces population had income of approximately \$45 dollars per month – a little more than a dollar a day, or about 7 rands a day. The rationale for first using the dollar (USD) as an indicator of subsistence is because it is a benchmark currency for foreign exchange. Still, for greater clarity, the daily rate of subsistence is reflected in South African rands (about R7/day) to put it into a South African context. For that matter and with reference to need, by 2004 the mean number of individuals not economically active was nearly 1.5 million. These statistics are fairly in line with an unemployment rate that is thought to be around 40%. Since the ANC's assumption of power, the reported jobless rate has ranged from 30% to 35%. These factors, education, income, need (social-welfare factors) and the HIV/AIDS



prevalence rate is presumed to have had some strain [effect] on the demand for government services, as by 2003 the mean change in the demand for provincial government services 5%. Highly skewed, in one province (the minimum) demand for government services contracted by a negative 1%. In yet another province (the maximum) demand for government services increased by 30%. Notably, the provinces' ability to meet the increased demand for services should be reflected in its productivity – i.e., provincial GDP. In 2003, the mean change in GDP was less than 1%. The maximum change in the rate of growth of any one province was a little more than 1%. One province had a change in the rate of growth of a negative five-tenths of one percent – i.e., negative growth. This might perhaps be a feature of the unitary state that, in the case of South Africa, promotes the assignment and transfer of revenue from the central government to sub-national governments [provinces]. Indeed, a significant portion of provincial governments' revenue is derived from national government (Levy & Tapscott, 2001:131). Consequently, the need for provinces to be productive may not have been a necessity, with expectations of revenue deriving from the national sphere of government.

The effects of race are considered firstly by considering the percent of province's population that are white and secondly by the percent of provincial votes received by the New National Party (NNP). In 2001, on average 11% of a province's population was white. One province had a mere 2% of its population being comprised of whites, while another province had 40% of its province being comprised of whites (Statistics South Africa, 2003). In the 2004 elections, the NNP (the remnant of the apartheid National Party) won on average 2% of the popular vote. In one province the NNP was able to win 10% of the popular vote (Independent Electoral Commission, 2004). Surprisingly, by



2006 the NNP was all but non-existent, with its party members being absorbed into the ANC, the Democratic Alliance (DA) and other minor parties.

5.3 BIVARIATE REGRESSION ANALYSIS

There is hesitation to draw final conclusions based on the measures of central tendency presented as descriptives. It, however, would be safe to say that based on the descriptives above provinces are potential breeding grounds for HIV/AIDS. An increase in the prevalence rate is inevitable. In light of an average population growth rate of 6%, provincial spending for HIV/AIDS ranging 11 million to 246 million rands seems hardly enough. Moreover, average conditional grants of R3 million cannot be expected to curtail an HIV/AIDS prevalence rate (on average) of 13%. These statistics were sourced from table 5.1 where descriptive statistics are indicated.

Nevertheless, the descriptives prepares for considering four sets of bivariate relationships. Notably, the relationship between voter turnout and government spending is the primary concern of this dissertation. Can voter's influence government spending for HIV/AIDS? The first set of bivariate models considers the relationship between the dependent variable for provincial spending and the independent variables for voter turnout, the change in population growth and the HIV/AIDS prevalence rate. The set consists of three bivariate models where simple [ordinary] linear regressions (OLS) are run using SPSS. Using the same estimation method, the second set of bivariate models uses the same independent variables but the dependent variable representing national spending for HIV/AIDS replaces provincial spending for HIV/AIDS. In the case of the third set of bivariate models, the dependent variable is again provincial spending for HIV/AIDS but the independent variables of income and need are regressed. Finally, the fourth set of



bivariate models use the same regressed independent variables but the dependent variable in this instance is national spending for HIV/AIDS. Likewise, OLS is the estimation method used for the third and fourth set of bivariate models. Appendices 2, 3, 4, and 5 presents the SPSS output for the various models.

5.3.1 Provincial Spending and Voter Turnout Models

The first bivariate model consists of the dependent variable provincial spending for HIV/AIDS being regressed on voter turnout. Notably, the expectation is that there would be a negative relationship between the two variables. In other words, with the hypothesis being that *voters do not have the ability to influence government spending*, it is not expected that an increase in the independent variable would result in an increase in the dependent variable. Beta (the slope of the regression line) then is expected to be negative. The SPSS output summarised in Table 5.2, however, is contrary to expectations.

Table 5.2

Bivariate Analysis of Provincial Spending for HIV/AIDS

Parameter Estimates: **First Set**

Dependent Variable = PROV_SPEND_03

Estimation Method: OLS

| Independent Variables | Predicted Sign | R | R ² | (000,000) SE | t | sig | Beta |
|------------------------|----------------|------|----------------|-----------------|-------|------|-------|
| Model 1 - VOTE_TURN_04 | Neg | .822 | .630 | 46.1 | 3.83 | .007 | .822 |
| Model 2 - POP_GROW_03 | Pos | .457 | .209 | 72.0 | -1.36 | .216 | -.457 |
| Model 3 - AIDS_PREV_02 | Pos | .482 | .233 | 70.9 | 1.46 | .189 | .482 |



With reference to model 1, the sign for Beta is positive, suggesting a positive relationship between voter turnout and provincial spending. Moreover, the correlation coefficient R , being relatively close to 1, suggests that there is a relatively high correlation (.82) between the two variables. Moreover, there is more than a moderate proportion (.63) of variation explained by the regression model. That is 63% of the variability in government spending is explained by voter turnout. The t -statistic indicates that the sample slope is 3.83 (about 4) standard error units below the hypothesized value of zero (0). However, note that the observed significance level of .007 indicates a low level of significance substantiating the rejection of the null hypothesis that there is no linear relationship between the variables. Although not perfectly 1, but nevertheless close to 1 (.82), there is a positive linear relationship between voter turnout and government spending for HIV/AIDS. Finally, the model appears to be a fairly good model for explaining and predicting changes in government spending due to voting activity.

Commenting briefly on models 2 and 3, both models appear to be less than optimal as the correlation coefficients (R) are construed to be closer to zero (0), thereby indicating low correlation to the dependent variables. Moreover, the variables' qualities of predictability are questionable, considering the low proportions of variation that are explained by the respective models. Recognising that in the real world that population growth and the HIV/AIDS prevalence rate have not been motivating factors for government to spend on HIV/AIDS may explain why these variables are poor predictors of government spending. With regards to population growth, it was expected that the sign would be positive – that is, that government would want to spend on HIV/AIDS policy, in response to of a growing population. A similar explanation is offered for predicting that the sign would



be positive for the HIV/AIDS prevalence rate. The Beta for population growth, however, turned out to be negative, indicating a negative relationship between population growth and government spending for HIV/AIDS. Indeed, this has been the case in the real world, suggesting that population growth has not been an influencing factor for spending on HIV/AIDS. Finally, the sign for AIDS prevalence was predicted to be positive and indeed it was computed (the Beta) to be positive. This confirms the real world expectation that in recognition of an increasing HIV/AIDS prevalence rate, the variable would have some relationship to government spending for HIV/AIDS. The models (1 and 2) are discounted, however, due to a low correlation coefficient R and R^2 explaining variability.

5.3.2 National Spending and Voter Turnout Models

Not surprising, there is virtually no correlation (.05) between voter turnout and national spending for HIV/AIDS – Table 5-3. Chapter three of this dissertation recalls the history of national policy making on the matter of HIV/AIDS and the discussion therein supports the output in model 1. A negative sign was indeed predicted, implying that an increase in voter turnout would not result in an increase in government spending. A Beta of .05, although positive, is so close to zero, it more or less compliments the “disconnection” between voters and policy makers that was alluded to in chapter three.



Table 5.3

Bivariate Analysis of National Spending for HIV/AIDS

Parameter Estimates: **Second Set**

Dependent Variable = NATL_SPEND_02

Estimation Method: OLS

| Independent Variables | Predicted Sign | R | R ² | SE | t | sig | Beta |
|------------------------|----------------|------|----------------|------|-------|------|-------|
| Model 1 - VOTE_TURN_04 | Neg | .050 | .002 | 2.52 | .132 | .899 | .050 |
| Model 2 - POP_GROW_03 | Pos | .498 | .248 | 2.19 | -1.52 | .173 | -.498 |
| Model 3 - AIDS_PREV_02 | Pos | .554 | .306 | 2.11 | 1.76 | .122 | .554 |

A hypothesis that voters do not have the ability to influence policy making on HIV/AIDS as reflected in national government spending may be true, with regard for national spending. However, from the start the emphasis was on provincial spending and policy making. Additionally, considering the R^2 explaining variability (and the low correlation) coefficient, the model can only be discounted, offering no predictability of national spending for HIV/AIDS based on voter turnout. There is an inclination to disregard models 2 and 3 as well due to marginal (.49 and .55) correlation between the variables. A decision to do so is also based on the low R^2 explaining variability. Conclusively, models 1, 2, and 3 in the second set are not reliable models and therefore no conclusions can be drawn on the matter of national spending for HIV/AIDS. This process of rejecting models is not uncommon – at least for this study. Characteristically, this is an iterative process. In other words, a number of variables, in some combination, or in some set are paired, regressions run, coefficients calculated and if there are low measures of



variability, than those models should be discounted. The process is repeated, as will be seen until the optimal model is found and variables reflecting relatively significant degree of correlation are realised. A conservative approach is taken in rejecting models that offer little or no explanation for causality.

5.3.3 Provincial Spending Models - Income/Need

The variables income and need are considered in order to account for any income effects upon provincial government spending for HIV/AIDS. The variable NEED_04 is associated with need, as it represents the absence of income, whereas INC_01 at the least represents some [although] minimal amount of income earned. From the data below in the third set, income is not significantly correlated (.50) to provincial government spending. It was expected that the sign would be positive, with government spending targeted at low income earners – i.e., AIDS prevention targeted at the most vulnerable. Indeed, the sign indicated with a Beta of $-.504$ is negative. The negative correlation between income and provincial government spending is illogical. It should be expected that as the number [percentage] of the population [those] in need of income increases, government would respond with, say, social-welfare programmes. Nevertheless, with only 25% of the variation being explained by independent variable income, the model itself is discounted.



Table 5.4

Bivariate Analysis of Provincial Spending for HIV/AIDS – Need/Income

Parameter Estimates: **Third Set**

Dependent Variable = PROV_SPEND_03

Estimation Method: OLS

| Independent Variables | Predicted Sign | R | R ² | (000,000) | | | |
|-----------------------|----------------|------|----------------|-----------|-------|------|-------|
| | | | | SE | t | sig | Beta |
| Model 1 - INC_01 | Pos | .504 | .254 | 69.9 | -1.54 | .166 | -.504 |
| Model 2 - NEED_04 | Pos | .806 | .649 | 47.9 | 3.59 | .009 | .806 |

A case, however, can be made for model 2 where there is a relatively high (.81) correlation between need and government spending. Moreover, the sign was expected to be positive and indeed it is. There is indication that as there are increasing numbers of citizens who are economically inactive, government responds by spending on, in this case, HIV/AIDS prevention. With an R^2 of .65, a fair proportion of the variability in government spending is explained by the independent variable NEED_04. The model is therefore an adequate model for consideration and further discussion.

5.3.4 National Spending Models – Need/Income

The correlation coefficients (R) in the two models below are close to zero and consequently construed to mean that there are minimal linear relationships. Moreover, the low R^2 indicating strength in explaining variability, as in other instances, renders the models to be inadequate in predicting changes in national government spending for HIV/AIDS. An explanation offered for the inadequacies of the models can be that the data, while adequate for analysing provincial government spending, is inadequate for



analysing national spending. Recall, that the data pertaining to government spending reflects conditional grants allocated to the provinces. Another variable or proxy reflecting national government spending might be used in a follow-on study.

Table 5.5

Bivariate Analysis of National Spending for HIV/AIDS – Need/Income

Parameter Estimates: **Fourth Set**

Dependent Variable = NATL_SPEND_02

Estimation Method: OLS

| Independent Variables | Predicted Sign | R | R ² | SE | t | sig | Beta |
|-----------------------|----------------|------|----------------|------|-------|-----|-------|
| Model 1 - INC_01 | Pos | .073 | .005 | 2.52 | -.192 | .85 | -.504 |
| Model 2 - NEED_04 | Pos | .099 | .010 | 2.52 | .263 | .80 | .099 |

As the focus of this dissertation is on provincial government spending, attention is turned away from the fourth set of bivariate models. Nevertheless, two models are identified to be useful towards explaining or offering causality for provincial government spending.

Table 5.6

Bivariate Models - Provincial Spending HIV/AIDS

Dependent Variable = PROV_SPEND_03

| Independent Variables | Predicted Sign | R | R ² | (000,000) SE | t | sig | Beta |
|------------------------|----------------|------|----------------|-----------------|------|------|------|
| Model 1 - VOTE_TURN_04 | Neg | .822 | .630 | 46.1 | 3.83 | .007 | .822 |
| Model 2 - NEED_04 | Pos | .806 | .649 | 47.9 | 3.59 | .009 | .806 |



A least squares regression line can be formulated for each model above and subsequently used to predict values indicating prospective provincial spending for HIV/AIDS – of course dependent upon voter turnout and need (Norusis, 1998:19). In the case of model 1, the y-intercept and the slope indicated in Appendix 2 (coefficients) provides for establishing the following predictive [model] straight-line equation:

Equation 5.1

$$\text{Predicted Provincial HIV/AIDS Expenditure} = -35,010,911 + (65.68 \times \text{Voter Turnout})$$

Upon inserting an anticipated level of voter turnout in the model above, an amount indicating provincial expenditure can be predicted. Likewise, a least squares line can be formulated for model 2, upon use of the y-intercept and slope indicated in Appendix 4:

Equation 5.2

$$\text{Predicted Provincial HIV/AIDS Expenditure} = -30,043,733 + (72.09 \times \text{Need})$$

The implications of these models will be discussed further, when there is confirmation or rejection of the hypothesis – section 5.6. In the interim, there is merit in being able to predict levels of expenditure for efficient policy making and decision making capability. Of course, as indicated by coefficients in Table 5-6, the efficacy of the models has been empirically shown to be quite adequate.

5.4 MULTIVARIATE REGRESSION ANALYSIS

Thus far two bivariate models have been determined to be adequate predictors of government spending, inclusive of the independent variable voter turnout and



surprisingly the variable encompassing need. The variables pertaining to population growth, HIV/AIDS prevalence and income were discounted due to weak correlations to the dependent variable – especially, when the dependent variable was national spending for HIV/AIDS. Notably, the focus of this dissertation is on provincial government spending but considering the (unitary state) relationship between the national sphere and the provincial spheres of government (revenue sharing), national spending for HIV/AIDS was considered. Bivariate analysis for national spending, at least for the moment here in this dissertation, offered inadequate explanations for causality. Henceforth, multivariate analysis will focus on provincial government spending for HIV/AIDS.

The question now is: What other variables might possibly offer some explanation of causality and influence on the dependent variable PROV_SPEND_03? Can a multivariate model be formulated to reflect the multiplicity of effects, factors, etc. that in reality impact government spending (and so public policy decisions) for HIV/AIDS treatment and prevention? Heretofore, a multivariate model will be tried and tested. A test for multicollinearity will be conducted to eliminate less than optimal variables. Once an optimal model has been found, select variables will be eliminated in order to identify an optimal model to predict or explain provincial government spending for HIV/AIDS.

5.4.1 Multivariate Regression Analysis

Upon reviewing Table 3.2, eight (8) independent variables were identified to be included in the initial multivariate equation. Table 5.7 highlights those variables.



Table 5.7

Variables Included In Multiple Multivariate Equations

| Name | Description |
|----------------------|--|
| 1. WH_RACE_01 | Percent of Provincial Population That Are White |
| 2. EDUCA_01 | No. of Individuals w/less than Std.10 Education |
| 3. LAT_GROUP_04 | Latent Group Influence - % Change in Voter Reg. '99 –'04 |
| 4. SPEC_INT_01 | Special Interest Group TAC Influence On Aids Policy |
| 5. Δ_PROV_GDP_03 | % Change in Provincial Economic Productivity 2002-2003 |
| 6. Δ_DEM_GOVTSERV_04 | Change in Demand for Government Services 2002-2003 |
| 7. NNP_RACE_04 | % of Votes Received by New National Party – 2004 |
| 8. NATL_SPEND_02 | Conditional Grants To Provinces for HIV/AIDS Spending |

Appendix 6 presents the SPSS output to commence analysis to determine an optimal multivariate model. Firstly, backward elimination (Norusis, 1998:470) was used where initially all independent variables were part of the linear regression model and after several steps [recalculations] the variable having the least effect on the model's coefficient of determination (R^2) was subsequently eliminated. Recall that section 3.4.3 discusses multicollinearity and backward elimination. The process of backward elimination is reflected in the following table showing three prospective multivariate models and associated correlation coefficients.



Table 5.8

Summary of Models Resulting From Backward Elimination

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .992 ^a | .984 | .871 | 27184077.0 |
| 2 | .991 ^b | .982 | .929 | 20199197.8 |
| 3 | .991 ^c | .982 | .952 | 16550921.1 |

- a. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, CHANGE_DEM_GOV_SERV_04, SPEC_INT_01, CHANGE_PROV_GDP_03, EDUCA_01
- b. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, SPEC_INT_01, CHANGE_PROV_GDP_03, EDUCA_01
- c. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, SPEC_INT_01, EDUCA_01

When all seven independent variables (except the variable national spending for HIV/AIDS) are included in the model 1 multivariate model, the correlation coefficient (R) reflecting the overall linear relationship between the independent variables and the dependent variable (provincial government spending for HIV/AIDS) is remarkably high (.99). Through backward elimination certain variables fall by the wayside, due to their minimal affect on R^2 . Of course, R^2 indicates the degree of predictability by the independent variables. Model 3 is the resulting optimal model, with the predictors CHANGE_DEM_GOV_SERV_04 and CHANGE_PROV_GDP_03 being eliminated. The linear equation [model] for prediction where the y -intercept and betas are shown will be presented in section 5.4.3, Optimising the Multivariate Model.



At this point, a number of comments are warranted. Firstly, the variable NATL_SPEND_02 was immediately and automatically removed – most likely because the observed significance level for the variables coefficient was greater than .10. The process of backward elimination will (to begin) retain those variables where the observed significance level is less than .10. Secondly, it is purely coincidental that (the researcher) was able to identify variables for the multivariate model that contribute near perfectly (.99) to an outstanding linear relationship. The resulting high coefficient of determination is coincidental as well. No explanations other than luck and intuition are offered. Thirdly, note that model 3 and for that matter this initial multivariate analysis does not include the two bivariate independent variables of voter turnout and need. These two variables will be considered shortly hereafter. Finally, partial correlation coefficients for the variables retained in model 3 are as follows:

Table 5.9

Partial Correlation Coefficients for Multivariate Variables

| Variable | Partial Coefficient | Beta Sign |
|--------------|---------------------|-----------|
| NNP_RACE_04 | .910 | Positive |
| WH_RACE_01 | -.971 | Negative |
| LAT_GROUP_04 | -.937 | Negative |
| SPEC_INT_01 | -.867 | Negative |
| EDUCA_01 | .986 | Positive |



Whether negative or positive, all the variables show a high correlation to the dependent variable PROV_SPEND_03. The relationships, however, are subject to interpretation. In the case of NNP_RACE_04, the increase in provincial spending relative to an increase in NNP voter activity may be the result of political party activity to influence provincial spending by way of the “white vote.” Conversely, an increase in spending resulting from a decrease in the white population may represent [overall] provinces’ positive response to a dwindling white voter constituency. Most interesting is the negative signs for latent and special interests groups. As these groups’ activities decrease, provincial spending increases. This is an anomaly. It might be necessary to exclude the latent group variable due to multicollinearity (to be discussed in the following section). The negative sign for the special interest group variable may reflect government’s unresponsiveness and resistance to the activism of the TAC. Finally, it is somewhat plausible that the variable for education would have a positive sign. That is, as the number of individuals with less than a standard 10 education increases, government responds [theoretically] by spending more, say, on education – e.g., HIV/AIDS prevention education. Again, these explanations are based on interpretation and speculation.

5.4.2 Multicollinearity

Section 3.4.3 discussed the possibility of bias in regression coefficients. With regard for multicollinearity, when there is a relationship (linear for example) between predictors or two independent variables, a specification error could occur. Thus, when the tolerance of the variable is close to 1, there is some indication of a linear relationship between two independent variables. It then becomes necessary to discount a variable from the multivariate equation. Appendix 6 includes a table of coefficients where the tolerances



for model 3 are shown. Notably and as mentioned above, the variable LAT_GROUP_04 has a tolerance of .709. Having the highest tolerance coefficient, a decision is made to exclude the variable from the multivariate [regression] model. There is good cause to exclude the variable from the model, due to the negative sign of the partial correlation coefficient. The expectation is that a latent group's activities would increase government spending. That is, an increase in LAT_GROUP_04 would result in an increase in PROV_SPEND_03. With the latent group variable sign being negative, that expectation has not been met. The high tolerance of .71 further justifies excluding the variable from model 3. Consequently, 4 variables (WH_RACE_01, EDUCA_01, SPEC_INT_01 and NNP_RACE_04) are optimal variables for a predictive model for provincial government spending for HIV/AIDS.

5.4.3 Optimising the Regression Model

Bivariate regression analysis was conducted in section 5.3, with the outcome being the identification of two bivariate equations offering cause and effect, and prediction for provincial government spending for HIV/AIDS policy making. The variables for voter turnout and need, on their own, were found to be significant predictors of government spending. Notably, those variables were not considered in the process of multivariate regression analysis. In that instance, select variables were considered and several variables were subsequently excluded by way of backward elimination and scrutiny for multicollinearity [tolerances]. The desire now is to further optimise the model by combining the bivariate variables and the multivariate variables. Appendix 7 shows the regression in full numeric notation for the following six variables:



Table 5.10

Significance of Variables for Optimal Regression

| Variable | t | sig |
|--------------|-------|------|
| NNP_RACE_04 | -.359 | .754 |
| WH_RACE_01 | -.896 | .465 |
| NEED_04 | .058 | .959 |
| SPEC_INT_01 | -1.25 | .339 |
| EDUCA_01 | 3.19 | .086 |
| VOTE_TURN_04 | -.872 | .475 |

In this instance and when the regression was run, all the variables above entered the regression simultaneously and in one single step. Previously, backward selection was used to eliminate any variable having little or no effect on the models R^2 . Again, in this immediate instance all variables enter the regression; arbitrarily, a significance of .50 is used as a cut off to eliminate variables from the regression model. Doing, so, NNP_RACE_04 has a significance of .754 thus preventing rejecting the null hypothesis. In other words, the null hypothesis cannot be rejected, consequently indicating that there is no relationship between the dependent variable and the independent variable. The same can be said of the variable NEED_04 with an observed significance of .95 (Norusis, 1998:410-411). A decision is then taken to build an optimal regression model where the observed level of significance (sig.) is below .50. In each of those cases (WH_RACE_01, SPEC_INT_01, EDUCA_01, and VOTE_TURN_04), the null



hypothesis is rejected. Appendix 8 shows the regression run for those four variables. Note that the observed level of significance (sig.) is below or relatively close to .05 – that level of significance being the usual frame of reference at which a decision is made to reject or accept the null hypothesis. In reference to these variables, a decision is taken to reject the null hypothesis. Conclusively, there is a linear relationship between those variables and the dependent variable PROV_SPEND_03 - be it positive or negative as indicated by the sign of beta. Using the y-intercept and betas in appendix 8, the following linear equation is offered as the optimal multivariate regression:

Equation 5.3

Predicted Provincial HIV/AIDS Expenditure =

$$10,554,928 - (1,131,063,052 \times \text{WH_RACE_01}) - (141,812,028 \times \text{SPEC_INT_01}) + (639 \times \text{EDUCA_01}) - (205 \times \text{VOTE_TURN_04})$$

Although statistically the equation above is considered to be optimal, three of the variables (having negative beta coefficients) will no doubt cause a predicted provincial HIV/AIDS expenditure to be negative. From the model above, it will be concluded that a decrease in the white population, a decrease in special interest activity and, in this case, a decrease in voter turnout results in an increase in government spending. In other words these variables have a negative linear relationship with government spending. A decrease in these variables results in an increase in government spending. With regard for voter turnout, there was a positive linear relationship between the voter turnout variable and the variable for provincial government spending. There is an inclination then, with policy formulation in mind, to run a regression that indeed retains the education variable EDUCA_01 and VOTE_ TURN_04. That regression (Appendix 9) reveals that the



variable EDUCA_01 has an observed significance (sig.) of .86 and consequently the null hypothesis cannot be rejected. In other words, accepting the null hypothesis leads to concluding that there is no relationship between EDUCA_01 and PROV_SPEND_03. Thus, as in the initial bivariate regression model, VOTE_TURN_04 is an optimal variable (even here with an observed significance of .47.) that may be used to explain provincial government spending for HIV/AIDS.

It is important to note the effects variables have on R and sig. when running regressions. The correlation coefficient R and the observed significance (sig.) appear to increase or decrease due to the inclusion or exclusion of variables. One explanation offered is the multicollinearity that is detected and subsequently reflected in the tolerances. Having noted that, the regressions that were run yielded three optimal models – two bivariate and the other multivariate. Those models are:

Equation(s) 5.4

$$\text{Predicted Provincial HIV/AIDS Spending} = -35,010,911 + (65.68 \times \text{Voter Turnout})$$

$$\text{Predicted Provincial HIV/AIDS Spending} = -30,043,733 + (72.09 \times \text{Need})$$

$$\text{Pred. Prov. HIV/AIDS Spend} = -32,159,999 + (20.01 \times \text{Educa.}) + (53.74 \times \text{Voter Turnout})$$

An interim conclusion is made that select variables will offer significant explanation for provincial government spending for HIV/AIDS. The variables for voter turnout and need have a bivariate linear relationship with the variable provincial spending. However, in a



multivariate model where voter turnout continues to contribute to predictability, the variable for education also has a linear relationship with the variable for provincial spending. The consequences for policy and inferences will be discussed in section 5.6 where the dissertation hypothesis is either confirmed or refuted.

5.4.4 Test of Hypothesis

Leading to a discussion where the hypothesis is either rejected or confirmed, the discussion now focuses on the bivariate model (equation 5.1) where:

$$\text{Predicted Provincial HIV/AIDS Expenditure} = -35,010,911 + (65.68 \times \text{Voter Turnout})$$

To test the null hypothesis that there is no linear relationship between PROV_SPEND_03 and VOTE_TURN_04 the following table of coefficients is produced:

Table 5.11

SPSS Coefficients for Test of Hypothesis of Slope

| Coefficients ^a | | | | | | | | |
|---------------------------|--------------|-----------------------------|------------|---------------------------|--------|------|-------------------------------|-------------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | -4E+007 | 3E+007 | | -1.061 | .324 | -113025503 | 43003680.99 |
| | VOTE_TURN_04 | 65.679 | 17.173 | .822 | 3.825 | .007 | 25.072 | 106.286 |

a. Dependent Variable: PROV_SPEND_03



The primary concern of this dissertation is for the effect of the voting franchise, as reflected by voter turnout, on provincial government spending. With the correlation coefficient (R) being .82, there is good indication of a linear relationship between the dependent variable and independent variable. The relationship is examined by testing the values for the slope (65.679) and the y-intercept (-4E+007). Indeed, there is a test of the null hypothesis that the slope is 0. With a small-observed significance (sig.) of .007, the null hypothesis is rejected. Thus, the slope is not zero and there is a linear relationship between the two variables. Furthermore, upper and lower limits for all possible values (95% confidence interval) are indicated in the range of 25.07 and 106.29. Essentially, there are a number of possible values for predicting government spending. It can be said, however, at a confidence level of 95%, certain values will fall between the upper and lower ranges indicated above.

5.5 TEST OF HYPOTHESIS - CORRELATION COEFFICIENT: FISHER'S Z

As stated above, a test of hypothesis confirms that the slope (b) is not equal to zero – i.e., that there is no linear relationship. With the null hypothesis being rejected, it is accepted that there is a linear relationship. Still, what certainty is there that the correlation coefficient R (.82) is truly as calculated the statistic .82? Fisher's z provides for testing the hypothesis that $R = .82$. The test of the [null] hypothesis is written as $H_0: r = b$, where in this instance the slope is equivalent to the correlation coefficient R because there is indication of linearity and the slope not being zero. The null hypothesis for testing the correlation coefficient can then be written as $H_0: r = .82$ (Kleinbaum & Kupper (1978:78-80), as discussed in section 3.4.6.



To test the null hypothesis, the t-statistic is transformed to a z-statistic through the following formula:

Equation 5.4

$$z = \frac{1}{2} \log_e(1 + r/1 - r) - \frac{1}{2} \log_e(1 + \mathbf{r}/1 - \mathbf{r}) \text{ divided by } 1 / \sqrt{n}$$

where:

r = An alternative correlation coefficient in the event that the calculated correlation coefficient is not .82 – for example, an anticipated lower than expected coefficient of .68

\mathbf{r} = The calculated correlation coefficient .82

The equation is then solved in the following manner - The calculated figures of 0.8291 and 1.1568 are determined from ($\frac{1}{2} \ln 1 + r/1 - r$) tables in (Kleinbaum & Kupper (1978:656-657):

$$\frac{1}{2} \log_e(1 + r/1 - r) = \frac{1}{2} \log_e(1 + .68/1 - .68) = 0.8291$$

$$\frac{1}{2} \log_e(1 + \mathbf{r}/1 - \mathbf{r}) = \frac{1}{2} \log_e(1 + .82/1 - .82) = 1.1568$$

$$z = 0.8291 - 1.1568 \text{ divided by } 1/\sqrt{9}$$

$$z = -1$$

For an alpha (α) of .05 where the critical region z is greater than or equal to 1.96, the decision criterion is that of a 95% confidence interval and a one-tail test. Consequently,



with the calculated z being less than 1.96, the null hypothesis cannot be rejected. In other words, the null hypothesis is accepted that indeed the correlation coefficient is .82 and not, say, a different of even a lower coefficient such as .68. Thus, there is additional statistical and empirical evidence of the linear relationship between voter turnout and the ability of the electorate to influence public policy and provincial government spending for HIV/AIDS.

5.6 HYPOTHESIS: CONFIRM *v.* REFUTE - IMPLICATIONS FOR POLICY

In this dissertation (section 3.2), the hypothesis that voters “do not” have the potential to influence was stated. Chapter 4 could be viewed as having painted a rather dismal state of affairs, as it relates to HIV/AIDS in South Africa – i.e., the inconsistency in policy formulation and implementation by the Mbeki administration. Consequently, the hypothesis was put forth that the electorate (voter turnout) was virtually powerless, through the ballot box, to impact or influence public policy on HIV/AIDS as reflected in provincial government spending for HIV/AIDS. The analysis of the data and bivariate regression where provincial government spending was regressed on voter turnout leads towards concluding that indeed the electorate “can” influence government spending. The stated hypothesis is refuted and rejected. The bivariate regression that was run resulted in a positive linear relationship between the two variables representing voter turnout and provincial government spending for HIV/AIDS. As voter turnout increases, provincial government spending for HIV/AIDS increases. Moreover, there is a relatively high correlation between the two variables, with a fair degree of predictability of the dependent variable by the independent variable. The observed significance level was such that the null hypothesis that the slope of the straight line was zero was rejected.



With regard for policy, there should not be a jump to conclude that government is doing all that it can, in response to the AIDS epidemic. Nor should it be concluded that government is totally responsive to the electorate. It, however, is empirically supported that [provincial] government, to some degree, has been responsive to the electorate. When, as discussed in chapter 4, there is recognition of the revolt against national HIV/AIDS policy by provincial Premiers, it is understandable that at the provincial sphere of government there is empirical evidence of responsiveness. This, unfortunately, is not the case at the national sphere and where national government spending was regressed on voter turnout substantiates national governments unresponsiveness (see section 5.3.2). Conclusively, the hypothesis the voters do not have the ability to influence provincial government spending for HIV/IDS is rejected. The electorate can influence provincial public policy.



CHAPTER 6

CONCLUSION

6.1 INTRODUCTION

This final chapter motivates for writing and doing research on voting effects on public policy decision-making. It was noted how the subject matter was qualified by concentrating on public policy decision making as reflected in government spending for HIV/AIDS. In this final chapter more than anywhere else, opinions are expressed and recommendations are made, when possible supported by the data analysis.

It was noted how many of the independent variables turned out to be un-correlated to the dependent variable provincial government spending for HIV/AIDS. Such an occurrence may reflect the actual state of affairs, in that HIV/AIDS policy in South Africa is indecisive and appears to not reflect the input of key stakeholders. Notably, it was shown that voters could influence provincial government spending and decision making for HIV/AIDS. National government, however, has not shown its unqualified commitment to spending on HIV/AIDS prevention. It would do well to align itself, for example, with the TAC that has been more of an adversary than a partner in reducing the HIV/AIDS prevalence rate. With that in mind, further policy analysis is recommended to further understand the electorate's ability to influence public policy decisions.

6.2 MOTIVATIONS

When this dissertation was begun a little more than a year and half ago, the research was inspired by the work of Husted and Kenny. In those early days, there was a search for direction; direction was found through a brief communication [e-mail] from Professor



Husted. Mentioning this is not to express an endorsement, nor should it be construed that one was given. Rather, mention is made to reflect enthusiasm and desire to study voting patterns in the context of public administration and public policy. At that time, the research needed focus. Soon there was recognition of a need to study the HIV/AIDS crisis in South Africa in the context of public policy. After much thought, the title “The Effect of the Voting Franchise on Public Policy Decision Making and Provincial Government Spending for HIV/AIDS” was chosen and settled upon.

Admittedly, the initial hypothesis was that “voters had the ability to influence public policy decision making,” as reflected in government spending for HIV/AIDS. Indeed, the hypothesis was stated in the positive form because the convention seemed to be to state the hypothesis positively and then set off to prove or disprove the positive statement. With a fair amount of knowledge of how the Mbeki administration (more precisely the Minister of Health) had vacillated on HIV/AIDS policy, there was conviction that the voters did not have the ability to affect policy, or were having very little effect on HIV/AIDS by voting. The construed Mbeki statement, “HIV does not cause AIDS” and the Health Minister’s “beetroot prescriptions” seemed to support the notion that the government was not responsive to voters [constituents]. Notably, it was easy to fall into the trap of drawing a conclusion before concluding the research. As the research, writing and thought processes began, with the daily doom and gloom news of the HIV/AIDS state of affairs in South Africa, it seemed more appropriate to state the hypothesis in the negative. Indeed, by the time the third chapter was finished, a decision was made to state a negative hypothesis as opposed to a positive hypothesis. Surprisingly, the negative hypothesis was disproved and refuted that, at least at the provincial sphere of



government, that voters cannot influence public policy and for that matter government spending for HIV/AIDS. At the provincial level, the data tended to indicate that there is a positive [linear] relationship between voter turnout and government spending.

Although non-probability sampling was used, something [positive] has to be said of the quality of the secondary data. Rightly, the reliability and validity of [secondary] data collected by Statistics South Africa (SSA) should be suspect and viewed with a jaundiced eye. Thus, being pragmatic no weakness in the data was detected, at the least, in the quality of SSA's data – either in collection or presentation. At best, there is hope that another dimension has been brought to the analysis of SSA's data. Furthermore, it would be appropriate to be wary of manipulation and interpretation of the statistical output. Assuredly, there is no desire to paint the government of the day in a good light – this in recognition of its seemingly terrible track record on the matter of HIV/AIDS policy. There is no axe to grind and while not being a seasoned statistical analyst, the statistical approach taken and output is simple enough to interpret as “there being some relationship between the two variables concerned.” Where license is now taken is on the matter of making inferences and deductions based on the analysis of statistical output and the disproval and refute of the hypothesis.

6.3 CONCLUSIONS DRAWN: INFERENCES

Attention is first drawn to section 5.3.2 where national spending and voter turnout models were presented. Critics might argue that a conclusion should not be drawn on the matter of voters affecting policy and government spending for HIV/AIDS at the national sphere. The regression ran indicated no correlation between voter turnout and national spending for HIV/AIDS. Yet, considering the antipathy of the Minister of Health and the



reluctance to fully support antiretroviral therapy, it is not surprising that the statistical data indicates no correlation. There is a deduction that the data output confirms the absence of direction by the national government on HIV/AIDS policy. In contrast, the efficacy of voting is empirically supported as it relates to provincial public policy. Notably, had there been a positive linear relationship of variables at the national level, such finding would certainly be open to criticism, in light of the controversial response of the government of the day, as identified in chapter 4.

Returning to the provincial sphere, in section 5.3.2 it is seen that income was found to be negatively correlated to HIV/AIDS spending. It was expected that as the number of individuals having a need for income increased, provincial government would spend more. This, however, was not the case. Subsequently, it was deduced that provincial government does not make HIV/AIDS policy based on income. Such an inference is acceptable considering that it does not matter what income bracket an individual is in. HIV/AIDS cuts across all income levels and policy should not be made based on income. Assuming that this is the frame of mind within which provincial government makes policy, it is commendable then that provincial government does not consider income as a factor when making policy on HIV/AIDS. Again, when there is examination of the affects of income and need on national government spending for HIV/AIDS (section 5.3.4) the absence of a linear relationship of variables at the national sphere just seems to reinforce what is already know about national government's position and response to the HIV/AIDS epidemic. Revealingly, in the 2006 budget speech there is hardly a mention of government spending on HIV/AIDS by the Minster of Finance. It is then inferred that



the absence of a correlation of the need and income variables to National HIV/AIDS spending confirms the absence of political will.

Turning attention to inference based on multiple regression output, note that in table 5.8 (models 1-3) the variable provincial spending was regressed on national spending in an attempt to realise any explanatory effects on provincial spending by national spending. Interestingly, the variable immediately dropped out of the SPSS regression. It is therefore assumed that there was very little explanatory effect offered; this assumption is in line with the relationship and conflict between these two spheres of government. Recall that through transfers, national government contributed a minimum [mere] amount of .23 million rands to a province's fight against HIV/AIDS. It might then be expected that there would be little or no relationship between provincial spending and national spending for HIV/AIDS. Conclusively, an effective HIV/AIDS education and treatment programme without commitment and wholehearted coordination by the national government could hardly be expected. As much as provinces may be willing to go at it alone, the support of national [central] government will nevertheless be crucial.

Finally, a word about the latent group [TAC's] affect on government spending: There can be no doubt that the Treatment Action Campaign is the most vociferous group attempting to influence policy making on HIV/AIDS. A question that should be raised, if not by government, then by The TAC itself is: As a latent group attempting to influence policy, how effective is the TAC? The data seems to indicate to say that the TAC is not effective. Table 5.9 shows a negative beta indicating an inverse relationship between the TAC's activities and government spending. Thus it is inferred that the more the TAC engages in staying on the agenda and the more pressure it exerts on government, the less



government will spend in reaction to TAC activism. A different strategy of engagement by the TAC is required and there is recent indication that the rules of engagement are changing – i.e., TAC meeting and discussing policy with the Deputy President. Although the partial correlation coefficient is fairly high, it is in favour of an inverse and negative relationship to government spending. The inference will not be carried so far as to say that the TAC does not have a roll to play. Indeed, it has played a significant roll in forcing government to roll out an antiretroviral (ARV) HIV/AIDS treatment plan for pregnant women. The TAC's open criticisms of the Minister of Health, the adversarial nature of the relationship between the TAC and the government does not bode well for the fight against HIV/AIDS. If anything, that is what the data indicates – i.e., the negative correlation between the latent group variable and government spending. Surely, there must be some mid-ground where both can meet and form a collaborative strategy on the matter of making ARVs available to those who need treatment? Indeed, that mid-ground may have been met. Sadly, with the diminishing role of the Minister of Health being sidelined due to poor health and a liver transplant.

6.4 RECOMMENDATIONS

It is somewhat surprising to see so many independent variables having little or no correlation to dependent variables. For example, section 5.3.1 reveals that population growth and AIDS prevalence are only marginally correlated to provincial spending for HIV/AIDS. It would be expected that such variables would significantly impact HIV/AIDS policy. Definitely, provincial government should consider these variables and respond by spending more in response to an increasing AIDS prevalence rate. Indeed, there is a positive relationship between the independent variable and the dependent



variable but a correlation coefficient (R) of .48 is construed as there being no significant correlation. Provincial HIV/AIDS policy should be made while paying close attention to the HIV/AIDS prevalence rate.

That so many independent variables were found to have no correlation to the dependent variable was especially true when national spending was regressed in bivariate models. Section 5.3.2 shows voter turnout to have no correlation to national spending. There was a discussion about the disconnection (perhaps a better word to use is disjuncture) between political incumbents and their constituents. The party list system that seems to exacerbate the disjuncture between those elected and their constituents was discussed as well. As recently as mid 2006 there was talk of introducing a constituency based voting system, doing away with the party list voting system (Moipone, 2006). This would require a significant change in the mindset of the ANC. Indeed, the ANC would have to subject itself to the prospect of losing some [ruling] power and control. It is not certain that scraping the existing electoral (party list) system is a solution. That those elected first owe their allegiance to the political party and then to their constituents is reflected in the data analysis – i.e., the disjuncture. It is highly recommended that the electoral system be analysed, overhauled and redesigned in some way that allows voters to directly vote for their elected officials. Only then will constituents [voters] be able to significantly affect public policy making by voting for party representatives that are responsive to the needs of their constituents.

Finally, there is a recommendation for further policy analysis relating to the electorate's propensity to influence policy decisions. For that matter, this relates to the contribution of this dissertation to the discipline of public [policy] administration. Public policy



decisions should be subjected to rigorous, scientific and methodical scrutiny and analysis. This dissertation has examined the public policy decision to not move expediently on providing universal HIV/AIDS treatment. There is a supportive argument in that public policy decisions should not be made in isolation. Some hesitancy and reluctance has its place – especially considering the potential toxicity of any HIV/AIDS treatment regimen. Nevertheless, the best policy decisions are those that reflect the input of voters, constituents and stakeholders. To a great extent, in South Africa consultation with the public on proposed legislation provides an opportunity for input on public policy decisions. Whether policy makers, politicians and the executive are merely going through the motions is an issue for debate.

6.5 CONCLUSION

There is great hope that this work reflects what has been learned and the ability for self-directed independent learning as a PhD student and a researcher. The objective has been to reflect on the many years of tertiary education that includes an undergraduate degree and two masters degrees. From those early days, those degrees were meant to be the foundation in preparation to commence and conclude this dissertation. Happily, there is a conclusion only to begin a new journey of discovery through research and investigation that, as a PhD, will contribute to the discipline of public management and administration.



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Appendix 1

Sources and References for Variables Included In Multiple Multivariate Equation

| Variable Name | Description |
|-----------------|--|
| 1. VOTE_TURN_04 | Provincial Voter Turnout – 2004 Provincial Elections |
| | Independent Electoral Commission (2004) <i>National and Provincial Elections 2004</i> . Retrieved October 17, 2005, from http://www.elections.org.za/Elections2004_Static.asp?radResult=50 |
| 2. PARTY_EFF_04 | Party Effects/Dichotomous Var. (1) ANC Prov. Legislature |
| | Independent Electoral Commission (2004) <i>Provincial Seat Allocation – Election 2004</i> Retrieved October 18, 2005, from http://www.elections.org.za/papers/119/Seat%20Allocation%20-%20Elections%202004.pdf |
| | Knight, R. (2004). <i>Shared Interest – A Decade of Democracy: Government and Elections</i> . Retrieved October 17, 2005, from http://richardknight.homestead.com/files/sigovernmentandelections2004.htm |
| 3. WH_RACE_01 | Percent of Provincial Population That Are White |
| | Statistics South Africa (2003). <i>Census 2001: Primary Tables South Africa</i> , p. 5. Retrieved October 19, 2005, from http://www.statssa.gov.za/census01/html/C2001PrimTables.asp |
| 4. EDUCA_01 | No. of Individuals w/less than Std.10 Education |
| | Statistics South Africa (2003). <i>Census 2001: Primary Tables South Africa</i> , p. 37. Retrieved October 19, 2005, from http://www.statssa.gov.za/census01/html/C2001PrimTables.asp |



5. INC_01 % of Prov. Pop. (Age 15-65) w/income R400-800/month

Statistics South Africa (2003). *Census 2001: Primary Tables South Africa*, p. 75. Retrieved October 19, 2005, from <http://www.statssa.gov.za/census01/html/C2001PrimTables.asp>

6. AIDS_PREV_02 Prov. HIV/AIDS Prevalence Rate at July 2002

Hickey, A. Ndlovu, N. & Guthrie, T. (2003). *Budgeting for HIV/AIDS In South Africa: Report on Intergovernmental Funding Flows for an Integrated Response In the Social Sector*. Cape Town: IDASA

7. NEED_04 Those Not Economically Active at March 2004

Statistics South Africa. (2005, March). *Labour Force Survey*. (Statistical Release P0210, p. 18). Retrieved October 20, 2005, from <http://www.statssa.gov.za/publications/P0210/P0210September,March2000,2005.pdf#search='Labour%20Force%20Survey%2C%20Statistical%20Release%20P0210%2C%20September%202000%20to%20March%202005'>

8. LAT_GROUP_04 Latent Group Influence - % Change in Voter Reg. '99 – '04

Calculated increase in registered voters = $(\text{REG_VOTERS_04} - \text{REG_VOTERS_99}) / \text{REG_VOTERS_99}$

9. SPEC_INT_01 Special Interest Group TAC Influence On Aids Policy

Treatment Action Campaign (2003, February). *Annual Report*. Durban: TAC.

10. Δ_PROV_GDP_03 % Change in Prov. Economic Productivity 2002-2003

Change in provincial growth = $(\text{PROV_GDP_03} - \text{PROV_GDP_02}) / \text{PROV_GDP_02}$

11. PROV_SPEND_03 Provincial HIV/AIDS Expenditure for 2003

Hickey, A. Ndlovu, N. & Guthrie, T. (2003). *Budgeting for HIV/AIDS In South Africa: Report on Intergovernmental Funding Flows for an Integrated Response In the Social Sector*. Cape Town: IDASA.



12. REG_VOTERS_99 Registered Voters for April 2004 Elections

Sachs, M. (2004, October). *Unity in Action At the Ballot Box*. (Umrabulo, no. 21).
Johannesburg: African National Congress.

13. REG_VOTERS_04 Registered Voters for 1999 Elections

Independent Electoral Commission (2004) *National and Provincial Elections 2004*. Retrieved
October 17, 2005, from http://www.elections.org.za/Elections2004_Static.asp?radResult=50

14. NATL_SPEND_02 Conditional Grants To Provinces for HIV/AIDS Spending

Hickey, A. Ndlovu, N. & Guthrie, T. (2003). *Budgeting for HIV/AIDS In South Africa:
Report on Intergovernmental Funding Flows for an Integrated Response In the Social
Sector* (p. 36) Cape Town: IDASA.

15. TOTAL_POP_01 Total Provincial Population 2001 Age 15 -65

Statistics South Africa (2003). *Census 2001: Primary Tables South Africa* (p. 4.) Retrieved
October 19, 2005, from <http://www.statssa.gov.za/census01/html/C2001PrimTables.asp>

16. TOTAL_POP_03 Total Provincial Population 2003

Hickey, A. Ndlovu, N. & Guthrie, T. (2003). *Budgeting for HIV/AIDS In South Africa:
Report on Intergovernmental Funding Flows for an Integrated Response In the Social
Sector* ((p. 65). Cape Town: IDASA

17. POP_GROW_03 Growth Rate for years 2002-2003

Calculated growth rate = (TOTAL_POP_03 minus TOTAL_POP_01) / TOTAL_POP_01

18. PROV_GDP_02 Provincial GDP for 2002 – Provincial Economic Growth

Department of Trade and Industry (2003). *Gross Domestic Product: South Africa 2003*.
Retrieved October 20, 2005, from <http://www.thedti.gov.za/econdb/GDPRegions.html>



19. PROV_GDP_03 Provincial GDP for 2003 – Provincial Economic Growth

Department of Trade and Industry (2003). *Gross Domestic Product: South Africa 2003*.
Retrieved October 20, 2005, from <http://www.thedti.gov.za/econdb/GDPRegions.html>

20. DEM_GOVTSERV_02 Demand for Government Services – 2002

Department of Trade and Industry (2003). *Gross Domestic Product: South Africa 2003*.
Retrieved October 20, 2005, from <http://www.thedti.gov.za/econdb/GDPRegions.html>

21. DEM_GOVTSERV_03 Demand for Government Services – 2003

Department of Trade and Industry (2003). *Gross Domestic Product: South Africa 2003*.
Retrieved October 20, 2005, from <http://www.thedti.gov.za/econdb/GDPRegions.html>

22. Δ _DEM_GOVTSERV_04 Change in Demand for Government Services 2002-2003

Change in demand for govt. services =
 $(\text{DEM_GOVTSERV_03} \text{ minus } \text{DEM_GOVTSERV_02}) / \text{DEM_GOVTSERV_02}$

23. NNP_RACE_04 % of Votes Received by New National Party – 2004

Independent Electoral Commission (2004) *Provincial Seat Allocation – Election 2004* Retrieved
October 18, 2005, from <http://www.elections.org.za/papers/119/Seat%20Allocation%20-%20Elections%202004.pdf>



Appendix 2

SPSS OUTPUT FOR TABLE 5.2 – PROVINCIAL SPENDING

Bivariate – Model 1

Variables Entered/Removed^b

| Model | Variables Entered | Variables Removed | Method |
|-------|----------------------------|-------------------|--------|
| 1 | VOTE_ TURN_04 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: PROV_SPEND_03

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .822 ^a | .676 | .630 | 46076407.0 |

a. Predictors: (Constant), VOTE_TURN_04

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|--------|-------------------|
| 1 | Regression | 3.1E+016 | 1 | 3.106E+016 | 14.628 | .007 ^a |
| | Residual | 1.5E+016 | 7 | 2.123E+015 | | |
| | Total | 4.6E+016 | 8 | | | |

a. Predictors: (Constant), VOTE_TURN_04

b. Dependent Variable: PROV_SPEND_03

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|-------|--------------|-----------------------------|------------|---------------------------|--------|------|-------------------------------|-------------|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | -4E+007 | 3E+007 | | -1.061 | .324 | -113025503 | 43003680.99 |
| | VOTE_TURN_04 | 65.679 | 17.173 | .822 | 3.825 | .007 | 25.072 | 106.286 |

a. Dependent Variable: PROV_SPEND_03

* Scientific notation (-4E+007) is used to represent the number -35,010,911. Indeed, -4E+007 (-35,010,911) represents the y-intercept of the straight line equation and 65.679 represents the slope. See section 5.3.4, Table 5.6 for application and discussion on calculating predicted values.



Bivariate – Model 2

Variables Entered/Removed^b

| Model | Variables Entered | Variables Removed | Method |
|-------|------------------------------|-------------------|--------|
| 1 | POP_ GROW_03 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: PROV_SPEND_03

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .457 ^a | .209 | .096 | 72037404.3 |

a. Predictors: (Constant), POP_GROW_03

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | 9.6E+015 | 1 | 9.591E+015 | 1.848 | .216 ^a |
| | Residual | 3.6E+016 | 7 | 5.189E+015 | | |
| | Total | 4.6E+016 | 8 | | | |

a. Predictors: (Constant), POP_GROW_03

b. Dependent Variable: PROV_SPEND_03

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|-------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1E+008 | 4E+007 | | 3.113 | .017 |
| | POP_GROW_03 | -6E+008 | 4E+008 | -.457 | -1.360 | .216 |

a. Dependent Variable: PROV_SPEND_03



Bivariate – Model 3

Variables Entered/Removed^d

| Model | Variables Entered | Variables Removed | Method |
|-------|----------------------------|-------------------|--------|
| 1 | AIDS_ PREV_02 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: PROV_SPEND_03

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .482 ^a | .233 | .123 | 70953258.2 |

a. Predictors: (Constant), AIDS_PREV_02

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | 1.1E+016 | 1 | 1.068E+016 | 2.121 | .189 ^a |
| | Residual | 3.5E+016 | 7 | 5.034E+015 | | |
| | Total | 4.6E+016 | 8 | | | |

a. Predictors: (Constant), AIDS_PREV_02

b. Dependent Variable: PROV_SPEND_03

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|--------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -2E+007 | 7E+007 | | -.327 | .753 |
| | AIDS_PREV_02 | 8E+008 | 5E+008 | .482 | | |

a. Dependent Variable: PROV_SPEND_03



Appendix 3

SPSS OUTPUT FOR TABLE 5.3 – NATIONAL SPENDING

Bivariate – Model 1

Variables Entered/Removed^a

| Model | Variables Entered | Variables Removed | Method |
|-------|----------------------------|-------------------|--------|
| 1 | VOTE_ TURN_04 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: NATL_SPEND_02

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .050 ^a | .002 | -.140 | 2.52418 |

a. Predictors: (Constant), VOTE_TURN_04

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|------|-------------------|
| 1 | Regression | .111 | 1 | .111 | .017 | .899 ^a |
| | Residual | 44.601 | 7 | 6.372 | | |
| | Total | 44.712 | 8 | | | |

a. Predictors: (Constant), VOTE_TURN_04

b. Dependent Variable: NATL_SPEND_02

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|--------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 3.123 | 1.807 | | 1.728 | .128 |
| | VOTE_TURN_04 | 1.24E-007 | .000 | .050 | .132 | .899 |

a. Dependent Variable: NATL_SPEND_02



Bivariate – Model 2

Variables Entered/Removed^b

| Model | Variables Entered | Variables Removed | Method |
|-------|--------------------------|-------------------|--------|
| 1 | POP_GROW_03 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: NATL_SPEND_02

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .498 ^a | .248 | .140 | 2.19197 |

a. Predictors: (Constant), POP_GROW_03

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | 11.079 | 1 | 11.079 | 2.306 | .173 ^a |
| | Residual | 33.633 | 7 | 4.805 | | |
| | Total | 44.712 | 8 | | | |

a. Predictors: (Constant), POP_GROW_03

b. Dependent Variable: NATL_SPEND_02

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|-------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 4.624 | 1.120 | | 4.128 | .004 |
| | POP_GROW_03 | -20.680 | 13.619 | -.498 | -1.518 | .173 |

a. Dependent Variable: NATL_SPEND_02



Bivariate – Model 3

Variables Entered/Removed^a

| Model | Variables Entered | Variables Removed | Method |
|-------|---------------------------|-------------------|--------|
| 1 | AIDS_PREV_02 ^a | . | Enter |

- a. All requested variables entered.
b. Dependent Variable: NATL_SPEND_02

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .554 ^a | .306 | .207 | 2.10479 |

- a. Predictors: (Constant), AIDS_PREV_02

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | 13.701 | 1 | 13.701 | 3.093 | .122 ^a |
| | Residual | 31.011 | 7 | 4.430 | | |
| | Total | 44.712 | 8 | | | |

- a. Predictors: (Constant), AIDS_PREV_02
b. Dependent Variable: NATL_SPEND_02

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|--------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.267 | 2.165 | | -.123 | .905 |
| | AIDS_PREV_02 | 27.678 | 15.739 | .554 | 1.759 | .122 |

- a. Dependent Variable: NATL_SPEND_02



Appendix 4

SPSS OUTPUT FOR TABLE 5.4 – PROVINCIAL SPENDING (NEED/INCOME)

Bivariate – Model 1

Variables Entered/Removed^b

| Model | Variables Entered | Variables Removed | Method |
|-------|---------------------|-------------------|--------|
| 1 | INC_01 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: PROV_SPEND_03

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .504 ^a | .254 | .148 | 69949128.4 |

a. Predictors: (Constant), INC_01

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | 1.2E+016 | 1 | 1.167E+016 | 2.384 | .166 ^a |
| | Residual | 3.4E+016 | 7 | 4.893E+015 | | |
| | Total | 4.6E+016 | 8 | | | |

a. Predictors: (Constant), INC_01

b. Dependent Variable: PROV_SPEND_03

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2E+008 | 6E+007 | | 2.710 | .030 |
| | INC_01 | -5E+008 | 3E+008 | -.504 | -1.544 | .166 |

a. Dependent Variable: PROV_SPEND_03



Bivariate – Model 2

Variables Entered/Removed^a

| Model | Variables Entered | Variables Removed | Method |
|-------|----------------------|-------------------|--------|
| 1 | NEED_04 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: PROV_SPEND_03

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .806 ^a | .649 | .599 | 47970994.0 |

a. Predictors: (Constant), NEED_04

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|--------|-------------------|
| 1 | Regression | 3.0E+016 | 1 | 2.981E+016 | 12.953 | .009 ^a |
| | Residual | 1.6E+016 | 7 | 2.301E+015 | | |
| | Total | 4.6E+016 | 8 | | | |

a. Predictors: (Constant), NEED_04

b. Dependent Variable: PROV_SPEND_03

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -3E+007 | 3E+007 | | -.892 | .402 |
| | NEED_04 | 72.085 | 20.029 | .806 | | |

a. Dependent Variable: PROV_SPEND_03

* Again, scientific notation (-3E+007) is used to represent the number -30,043,733. Indeed, -3E+007 (-30,043,733) represents the y-intercept of the straight line equation and 72.085 represents the slope. See section 5.3.4, Table 5.6 for application and discussion on calculating predicted values.



Appendix 5

SPSS OUTPUT FOR TABLE 5.5 – NATIONAL SPENDING (NEED/INCOME)

Bivariate – Model 1

Variables Entered/Removed^b

| Model | Variables Entered | Variables Removed | Method |
|-------|---------------------|-------------------|--------|
| 1 | INC_01 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: NATL_SPEND_02

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .073 ^a | .005 | -.137 | 2.52068 |

a. Predictors: (Constant), INC_01

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|------|-------------------|
| 1 | Regression | .235 | 1 | .235 | .037 | .853 ^a |
| | Residual | 44.477 | 7 | 6.354 | | |
| | Total | 44.712 | 8 | | | |

a. Predictors: (Constant), INC_01

b. Dependent Variable: NATL_SPEND_02

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 3.713 | 2.142 | | 1.734 | .127 |
| | INC_01 | -2.051 | 10.662 | -.073 | -.192 | .853 |

a. Dependent Variable: NATL_SPEND_02



Bivariate – Model 2

Variables Entered/Removed^b

| Model | Variables Entered | Variables Removed | Method |
|-------|----------------------|-------------------|--------|
| 1 | NEED_04 ^a | . | Enter |

- a. All requested variables entered.
b. Dependent Variable: NATL_SPEND_02

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .099 ^a | .010 | -.132 | 2.51491 |

- a. Predictors: (Constant), NEED_04

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|------|-------------------|
| 1 | Regression | .438 | 1 | .438 | .069 | .800 ^a |
| | Residual | 44.273 | 7 | 6.325 | | |
| | Total | 44.712 | 8 | | | |

- a. Predictors: (Constant), NEED_04
b. Dependent Variable: NATL_SPEND_02

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2.925 | 1.766 | | 1.656 | .142 |
| | NEED_04 | 2.76E-007 | .000 | .099 | .263 | .800 |

- a. Dependent Variable: NATL_SPEND_02



Appendix 6

SPSS OUTPUT FOR MULTIVARIATE REGRESSION MODEL

Variables Entered/Removed^b

| Model | Variables Entered | Variables Removed | Method |
|-------|---|------------------------------------|---|
| 1 | NNP_ RACE_04, WH_ RACE_01, LAT_ GROUP_ 04, CHANGE_ DEM_ GOV_ SERV_04, SPEC_ INT_01, CHANGE_ PROV_ GDP_03, EDUCA_ 01 ^a | . | Enter |
| 2 | . | CHANGE_ DEM_ GOV_ SERV_04 | Backward (criterion: Probability of F-to-remove >= . 100). |
| 3 | . | CHANGE_ PROV_ GDP_03 | Backward (criterion: Probability of F-to-remove >= . 100). |

a. Tolerance = .000 limits reached.

b. Dependent Variable: PROV_SPEND_03



Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .992 ^a | .984 | .871 | 27184077.0 |
| 2 | .991 ^b | .982 | .929 | 20199197.8 |
| 3 | .991 ^c | .982 | .952 | 16550921.1 |

a. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, CHANGE_DEM_GOV_SERV_04, SPEC_INT_01, CHANGE_PROV_GDP_03, EDUCA_01

b. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, SPEC_INT_01, CHANGE_PROV_GDP_03, EDUCA_01

c. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, SPEC_INT_01, EDUCA_01

ANOVA^d

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|--------|-------------------|
| 1 | Regression | 4.5E+016 | 7 | 6.454E+015 | 8.734 | .255 ^a |
| | Residual | 7.4E+014 | 1 | 7.390E+014 | | |
| | Total | 4.6E+016 | 8 | | | |
| 2 | Regression | 4.5E+016 | 6 | 7.517E+015 | 18.423 | .052 ^b |
| | Residual | 8.2E+014 | 2 | 4.080E+014 | | |
| | Total | 4.6E+016 | 8 | | | |
| 3 | Regression | 4.5E+016 | 5 | 9.019E+015 | 32.924 | .008 ^c |
| | Residual | 8.2E+014 | 3 | 2.739E+014 | | |
| | Total | 4.6E+016 | 8 | | | |

a. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, CHANGE_DEM_GOV_SERV_04, SPEC_INT_01, CHANGE_PROV_GDP_03, EDUCA_01

b. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, SPEC_INT_01, CHANGE_PROV_GDP_03, EDUCA_01

c. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, SPEC_INT_01, EDUCA_01

d. Dependent Variable: PROV_SPEND_03



Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Correlations | | | Collinearity Statistics | |
|--------------|------------------------|-----------------------------|------------|---------------------------|--------|--------|--------------|---------|-------|-------------------------|--------|
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part | Tolerance | VIF |
| 1 | (Constant) | -3E+007 | 6E+007 | | -.631 | .642 | | | | | |
| | WH_RACE_01 | -1E+009 | 3E+008 | -1.585 | -3.884 | .160 | .504 | -.968 | -.493 | .097 | 10.351 |
| | EDUCA_01 | 304.472 | 56.913 | 2.355 | 5.350 | .118 | .805 | .983 | .679 | .083 | 12.039 |
| | LAT_GROUP_04 | -3E+008 | 2E+008 | -.370 | -1.598 | .356 | -.094 | -.848 | -.203 | .300 | 3.333 |
| | SPEC_INT_01 | -2E+008 | 1E+008 | -.387 | -1.557 | .363 | -.066 | -.841 | -.198 | .260 | 3.839 |
| | CHANGE_PROV_GDP_03 | -2E+007 | 5E+007 | -.135 | -.330 | .797 | -.145 | -.313 | -.042 | .097 | 10.344 |
| | CHANGE_DEM_GOV_SERV_04 | 684518.9 | 2120014 | .110 | .323 | .801 | -.243 | .307 | .041 | .137 | 7.274 |
| | NNP_RACE_04 | 1E+009 | 6E+008 | .576 | 1.968 | .299 | -.286 | .892 | .250 | .188 | 5.329 |
| 2 | (Constant) | -2E+007 | 2E+007 | | -.947 | .444 | | | | | |
| | WH_RACE_01 | -9E+008 | 2E+008 | -1.521 | -5.758 | .029 | .504 | -.971 | -.543 | .127 | 7.847 |
| | EDUCA_01 | 294.368 | 35.324 | 2.277 | 8.333 | .014 | .805 | .986 | .786 | .119 | 8.399 |
| | LAT_GROUP_04 | -3E+008 | 1E+008 | -.421 | -3.321 | .080 | -.094 | -.920 | -.313 | .554 | 1.806 |
| | SPEC_INT_01 | -2E+008 | 7E+007 | -.339 | -2.294 | .149 | -.066 | -.851 | -.216 | .407 | 2.454 |
| | CHANGE_PROV_GDP_03 | -1927943 | 2E+007 | -.015 | -.119 | .916 | -.145 | -.084 | -.011 | .542 | 1.845 |
| | NNP_RACE_04 | 1E+009 | 3E+008 | .515 | 3.108 | .090 | -.286 | .910 | .293 | .323 | 3.091 |
| | 3 | (Constant) | -2E+007 | 2E+007 | | -1.151 | .333 | | | | |
| WH_RACE_01 | | -9E+008 | 1E+008 | -1.519 | -7.030 | .006 | .504 | -.971 | -.543 | .128 | 7.822 |
| EDUCA_01 | | 294.435 | 28.940 | 2.277 | 10.174 | .002 | .805 | .986 | .786 | .119 | 8.397 |
| LAT_GROUP_04 | | -3E+008 | 7E+007 | -.428 | -4.664 | .019 | -.094 | -.937 | -.360 | .709 | 1.410 |
| SPEC_INT_01 | | -2E+008 | 5E+007 | -.332 | -3.009 | .057 | -.066 | -.867 | -.232 | .491 | 2.035 |
| NNP_RACE_04 | | 1E+009 | 3E+008 | .513 | 3.799 | .032 | -.286 | .910 | .293 | .327 | 3.057 |

a. Dependent Variable: PROV_SPEND_03

Excluded Variables^d

| Model | | Beta In | t | Sig. | Partial Correlation | Collinearity Statistics | | |
|-------|------------------------|----------------------|-------|------|---------------------|-------------------------|-----------|-------------------|
| | | | | | | Tolerance | VIF | Minimum Tolerance |
| 1 | NATL_SPEND_02 | -14.484 ^a | . | . | -1.000 | 7.67E-005 | 13034.417 | 7.67E-005 |
| 2 | NATL_SPEND_02 | .122 ^b | .291 | .819 | .280 | .093 | 10.737 | .073 |
| | CHANGE_DEM_GOV_SERV_04 | .110 ^b | .323 | .801 | .307 | .137 | 7.274 | .083 |
| 3 | NATL_SPEND_02 | .004 ^c | .034 | .976 | .024 | .696 | 1.437 | .118 |
| | CHANGE_DEM_GOV_SERV_04 | .008 ^c | .075 | .947 | .053 | .771 | 1.297 | .110 |
| | CHANGE_PROV_GDP_03 | -.015 ^c | -.119 | .916 | -.084 | .542 | 1.845 | .119 |

a. Predictors in the Model: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, CHANGE_DEM_GOV_SERV_04, SPEC_INT_01, CHANGE_PROV_GDP_03, EDUCA_01

b. Predictors in the Model: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, SPEC_INT_01, CHANGE_PROV_GDP_03, EDUCA_01

c. Predictors in the Model: (Constant), NNP_RACE_04, WH_RACE_01, LAT_GROUP_04, SPEC_INT_01, EDUCA_01

d. Dependent Variable: PROV_SPEND_03



Appendix 7

SPSS OUTPUT BIVARIATE AND MULTIVARIATE VARIABLES

Optimal Regression Analysis

Variables Entered/Removed^a

| Model | Variables Entered | Variables Removed | Method |
|-------|---|-------------------|--------|
| 1 | NNP_RACE_04, WH_RACE_01, NEED_04, SPEC_INT_01, EDUCA_01, VOTE_TURN_04 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: PROV_SPEND_03

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .978 ^a | .956 | .825 | 31662243.644 |

a. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, NEED_04, SPEC_INT_01, EDUCA_01, VOTE_TURN_04

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|--------------------|----|--------------------|-------|-------------------|
| 1 | Regression | 43911964654815120 | 6 | 7318660775802520.0 | 7.300 | .125 ^a |
| | Residual | 2004995345184872.0 | 2 | 1002497672592436.0 | | |
| | Total | 45916959999999900 | 8 | | | |

a. Predictors: (Constant), NNP_RACE_04, WH_RACE_01, NEED_04, SPEC_INT_01, EDUCA_01, VOTE_TURN_04

b. Dependent Variable: PROV_SPEND_03

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|-------|--------------|-----------------------------|----------------|---------------------------|--------|------|-------------------------|---------|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 27458953.115 | 70379243.370 | | .390 | .734 | | |
| | WH_RACE_01 | -1084123052.486 | 1209392947.957 | -1.769 | -.896 | .465 | .006 | 178.323 |
| | EDUCA_01 | 679.126 | 213.040 | 5.252 | 3.188 | .086 | .008 | 124.343 |
| | SPEC_INT_01 | -124914349.322 | 100344058.661 | -.265 | -1.245 | .339 | .482 | 2.075 |
| | VOTE_TURN_04 | -246.175 | 282.394 | -3.082 | -.872 | .475 | .002 | 572.680 |
| | NEED_04 | 11.265 | 193.794 | .126 | .058 | .959 | .005 | 214.903 |
| | NNP_RACE_04 | -254037376.204 | 707169420.057 | -.131 | -.359 | .754 | .165 | 6.051 |

a. Dependent Variable: PROV_SPEND_03



Appendix 8

SPSS OUTPUT BIVARIATE AND MULTIVARIATE VARIABLES

Revised Optimal Regression Analysis_1

Variables Entered/Removed^a

| Model | Variables Entered | Variables Removed | Method |
|-------|---|-------------------|--------|
| 1 | VOTE_TURN_04, SPEC_INT_01, WH_RACE_01, EDUCA_01 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: PROV_SPEND_03

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .976 ^a | .952 | .905 | 23390660.850 |

a. Predictors: (Constant), VOTE_TURN_04, SPEC_INT_01, WH_RACE_01, EDUCA_01

ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|--------------------|----|---------------------|--------|-------------------|
| 1 | Regression | 43728467939943320 | 4 | 10932116984985830 | 19.981 | .007 ^a |
| | Residual | 2188492060056675.0 | 4 | 547123015014168.000 | | |
| | Total | 45916959999999900 | 8 | | | |

a. Predictors: (Constant), VOTE_TURN_04, SPEC_INT_01, WH_RACE_01, EDUCA_01

b. Dependent Variable: PROV_SPEND_03

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Correlations | | | Collinearity Statistics | |
|-------|--------------|-----------------------------|---------------|---------------------------|--------|------|--------------|---------|-------|-------------------------|--------|
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part | Tolerance | VIF |
| 1 | (Constant) | 10554928.196 | 23136159.959 | | .456 | .672 | | | | | |
| | WH_RACE_01 | -1131063052.362 | 238357847.452 | -1.845 | -4.745 | .009 | .504 | -.921 | -.518 | .079 | 12.692 |
| | EDUCA_01 | 639.946 | 140.893 | 4.949 | 4.542 | .010 | .805 | .915 | .496 | .010 | 99.650 |
| | SPEC_INT_01 | -141812028.872 | 63863810.510 | -.301 | -2.221 | .091 | -.066 | -.743 | -.242 | .649 | 1.540 |
| | VOTE_TURN_04 | -205.885 | 64.846 | -2.578 | -3.175 | .034 | .822 | -.846 | -.347 | .018 | 55.330 |

a. Dependent Variable: PROV_SPEND_03



Appendix 9

OPTIMAL MODEL WITH VARIABLES VOTE_TURN_04/EDUCA_01

Revised Optimal Regression Analysis_2

Variables Entered/Removed^b

| Model | Variables Entered | Variables Removed | Method |
|-------|--|-------------------|--------|
| 1 | VOTE_TURN_04, EDUCA_01 ^a | . | Enter |

a. All requested variables entered.

b. Dependent Variable: PROV_SPEND_03

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .823 ^a | .678 | .571 | 49643988.834 |

a. Predictors: (Constant), VOTE_TURN_04, EDUCA_01

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|-------------------|----|--------------------|-------|-------------------|
| 1 | Regression | 31129806235732120 | 2 | 15564903117866060 | 6.316 | .033 ^a |
| | Residual | 14787153764267860 | 6 | 2464525627377978.0 | | |
| | Total | 4591695999999900 | 8 | | | |

a. Predictors: (Constant), VOTE_TURN_04, EDUCA_01

b. Dependent Variable: PROV_SPEND_03

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Correlations | | | Collinearity Statistics | |
|-------|--------------|-----------------------------|--------------|---------------------------|-------|------|--------------|---------|------|-------------------------|--------|
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part | Tolerance | VIF |
| 1 | (Constant) | -32159999.628 | 39165415.889 | | -.821 | .443 | | | | | |
| | EDUCA_01 | 20.012 | 115.414 | .155 | .173 | .868 | .805 | .071 | .040 | .067 | 14.845 |
| | VOTE_TURN_04 | 53.742 | 71.287 | .673 | .754 | .479 | .822 | .294 | .175 | .067 | 14.845 |

a. Dependent Variable: PROV_SPEND_03



Collinearity Diagnostics^a

| Model | Dimension | Eigenvalue | Condition Index | Variance Proportions | | |
|-------|-----------|------------|-----------------|----------------------|----------|--------------|
| | | | | (Constant) | EDUCA_01 | VOTE_TURN_04 |
| 1 | 1 | 2.813 | 1.000 | .02 | .00 | .00 |
| | 2 | .178 | 3.972 | .67 | .03 | .01 |
| | 3 | .008 | 18.370 | .31 | .97 | .99 |

a. Dependent Variable: PROV_SPEND_03