MODELS OF GOVERNMENT GROWTH:
EXPLAINING STATE GOVERNMENT EMPLOYMENT GROWTH IN TEXAS

By

Brent Mears

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CHAPTER 1
Introduction

Making government work better is a fashionable approach to solving budget crisis's. This approach has recently been implemented in many state and local governments throughout the country. The idea is to run government more like a business, reduce its size and make it more efficient. Recent trends to reduce government size and make government run more efficiently include privatization, attrition, layoff, early retirement, investments in new technology and re-engineering government to combine processes and make better use of employees and equipment.

For example, in 1992, Ted Gabler and David Osborne released their book entitled *Reinventing Government*. In their book, Gabler and Osborne explain government in the following manner:

> "The word government is from a Greek word, which means 'to steer'. The job of government is to steer, not to row the boat. Delivering services is rowing, and government is not very good at rowing."

Their book explores the new entrepreneurial move to discover new ways of governing efficiently.

Under the direction of Vice President Al Gore, the Bill Clinton administration released the *National Performance Review* in 1993. Clinton's performance review included recommendations to correct federal government inefficiencies as well as a recommendation to "down-size", federal government employment.

In Texas, the State Comptroller's Office issued its first performance review—*Breaking the Mold: New Ways to Govern Texas* in 1991 and a second

review in 1993—*Against the Grain: High-Quality Low-Cost Government for Texas*. These two studies identify inefficiencies in Texas state government and offer recommendations for cutting government waste.

These policy reports show that there is interest in changing the way government operates. Most of the efforts have focused on government spending. Few studies, however, have looked at government employment.

An examination of the factors that cause government employment to grow will help policymakers determine the appropriate decisions to make regarding an acceptable size for government. Such an examination is important because it may help policymakers, and the general public, determine what size government should be and possibly what government should and should not be doing.

Research Purpose

The purpose of this research is three-fold. First, the research will examine the following government growth models: Wagner's Law, intergovernmental grants, fiscal illusion, party control, bureau voting, demonstration effect and electoral competition models.

Second, the relationship between the predictor variables of each model and total Texas state government employment will be tested. The relationship between the models' predictor variables and state government employment in the five primary functional categories—corrections, health and human services, highways, higher education and "other" government agencies—will also be tested. The other government function includes all other Texas state government agencies that do not fall into the four functional categories previously mentioned. Third, the seven government growth models will be tested against both total government employment and employment in the five governmental functions.

Organization of Research Project

This report focuses on government employment and some of the possible determinants of government growth. The setting of this study is Texas state government employment. Chapter 2 will discuss total state government employment in Texas as well as government employment in the five primary governmental functions—corrections, health and human services, highways, higher education and "other". The chapter focuses on the level of employment from 1965 to 1993 and employment growth. Policy decisions—both state and federal—and court orders affecting government employment also will be discussed.

Chapter 3 presents a comprehensive review of the literature related to government growth models. The primary factors affecting government employment levels will be identified. Tentative hypotheses for testing the significance of factors that explain total employment and employment in the five primary governmental functions will be developed.

A review of the methodological literature dealing with the appropriateness of the analytical tools to be employed—multiple and simple regression analysis, standard coefficient estimates, t-statistics, F-ratios and P-values—will be presented in Chapter 4. The strengths and weaknesses of these statistical methods will be discussed. Data sources and their validity will be presented. The process of operationalizing characteristic variables of the government growth models for testing the hypotheses developed in Chapter 3 will be explained.

Chapter 5 will discuss the findings of the study. Results will be presented in narrative and tabular form. The acceptance or rejection of each hypothesis will be discussed. The effect of the models' variables on the level of employment will be analyzed and discussed.

The final chapter, Chapter 6, will present the conclusions drawn from the analysis. The limitations of the study and a discussion of the analysis results will be presented. Recommendations for further analysis and research of relationships identified in this research will be discussed.

CHAPTER 2
Research Setting[1]

Introduction

This chapter provides information on the number of state government employees in Texas and employment levels in the primary government functions—corrections, health and human services, highways, higher education and "other" agencies. The employment overview begins with a summary of employment growth from 1965 to 1993. Factors contributing to the growth in these governmental functions are also discussed.

State Government Employment Growth

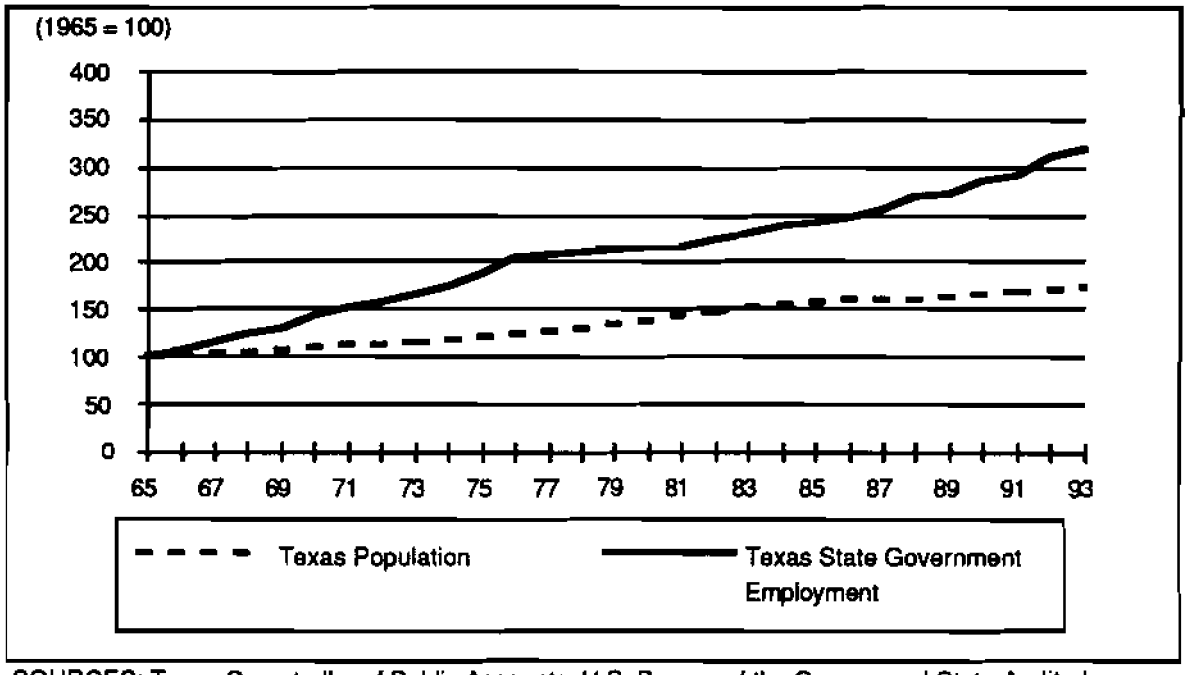
Since 1965, Texas has added about 172,000 new jobs in state government. Employment in this sector grew at an average annual rate of 4.2 percent from 1965 to 1993. During the same time period, the state's population grew at an average annual rate of 2.0 percent. As shown in figure 2.1, employment growth outpaced the growth in the general population. This can be attributed to a number of factors.

Federal mandates and court orders have been a major factor in creating new responsibilities and staffing ratios for state government. Economic conditions—such as the oil boom and subsequent bust—also have contributed to rising social caseloads. These factors and their relationship to the growth in state government employment are apparent after considering the growth in employment in the five primary governmental functions. Of these major

[1] Information in this chapter was obtained from the Office of the Texas Comptroller of Public Accounts and is the most current data regarding Texas state government employment.

categories, only the highways function has grown more slowly than Texas' general population. The remaining functions have all grown faster than the population, with corrections leading the way with the largest growth.

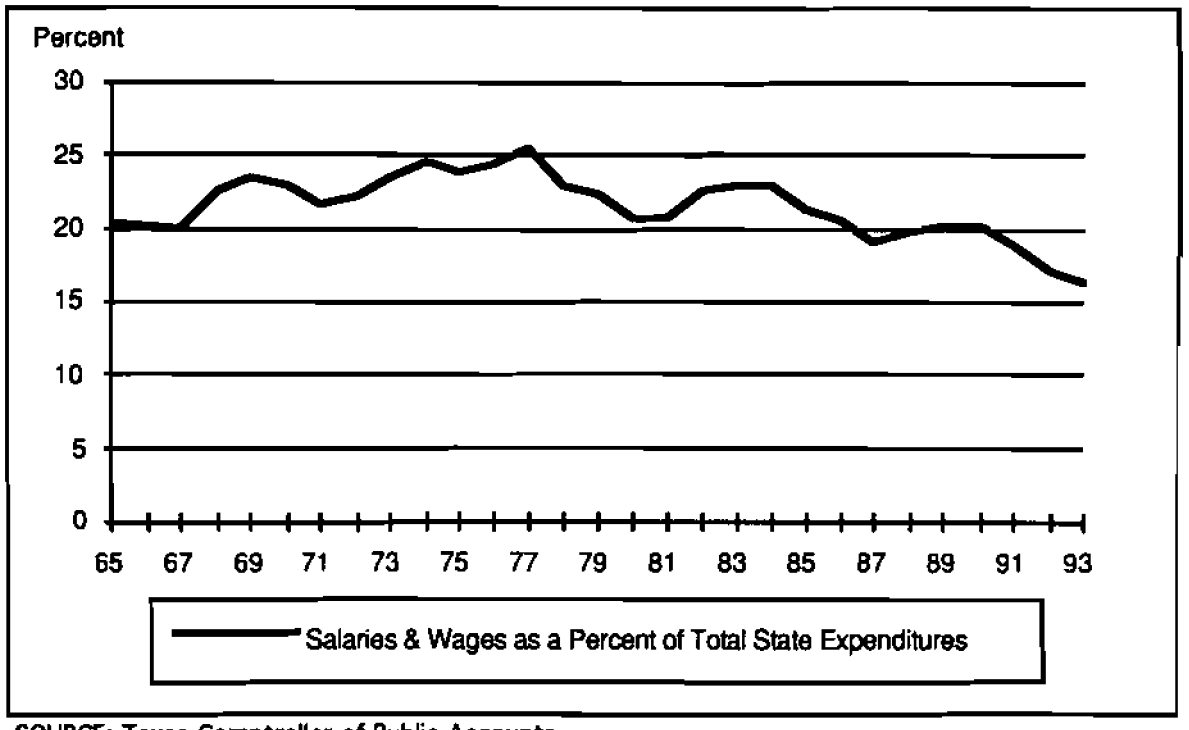
FIGURE 2.1
Indexed Growth in Texas Population and in State Employment



SOURCES: Texas Comptroller of Public Accounts, U.S. Bureau of the Census and State Auditor's Office.

State expenditures for salaries and wages to state government employees has remained relatively constant from 1965 to 1993. As shown in Figure 2.2, the state spent about $328 million, or 20.4 percent of its budget, on salaries and wages in 1965. In 1993, approximately $5,458.7 million, or 16.3 percent of the state budget, was spent on salaries and wages. Relative to other state spending, salaries and wages have declined over the past 30 years.

FIGURE 2.2
State Expenditures for Salaries & Wages As a Percent of Total State Expenditures



SOURCE: Texas Comptroller of Public Accounts.

State employment salaries and wages, adjusted for inflation, have grown by about 25 percent in the last ten years. Employee salaries and wages, however, have fallen in proportion to the amount Texas state government spent over the last ten years. Therefore, government spending on such items as highway construction, public and higher education, welfare and purchases for buildings and other equipment, have outpaced the amount paid to state employees. Texas state government does a lot more than pay bureaucrats.

The majority of salary and wage growth has occurred in the corrections sector, as presented in Table 2.1. This sector increased by just over 207 percent during this time period. As discussed later in this chapter, this sector also had the largest increase in the number new employees. The "other" governmental

agencies sector increased by approximately 38 percent. Increased spending for judges' and lawyers' salaries is the main cause of growth in this sector. Higher education salaries and wages increased by about 17 percent. In addition, health and human services increased by just under 7 percent and the highways sector increased by only 2 percent. Most of the growth in the health and human services sector has gone to employees of public welfare agencies.

TABLE 2.1
State Expenditures for Salaries & Wages
By Governmental Function

Governmental Functions	1983 (millions) 1992 $	1993 (millions)	Percent Change 1983-93
Corrections	$210.0	$645.2	207.2%
Health & Human Services	1,590.0	1,698.3	6.8
Highways	410.3	402.1	2.0
Higher Education	1,191.5	1,395.5	17.1
"Other"	948.1	1,309.5	38.1
Total	$4,349.5	$5,450.7	25.3%

SOURCE: Texas Comptroller of Public Accounts.

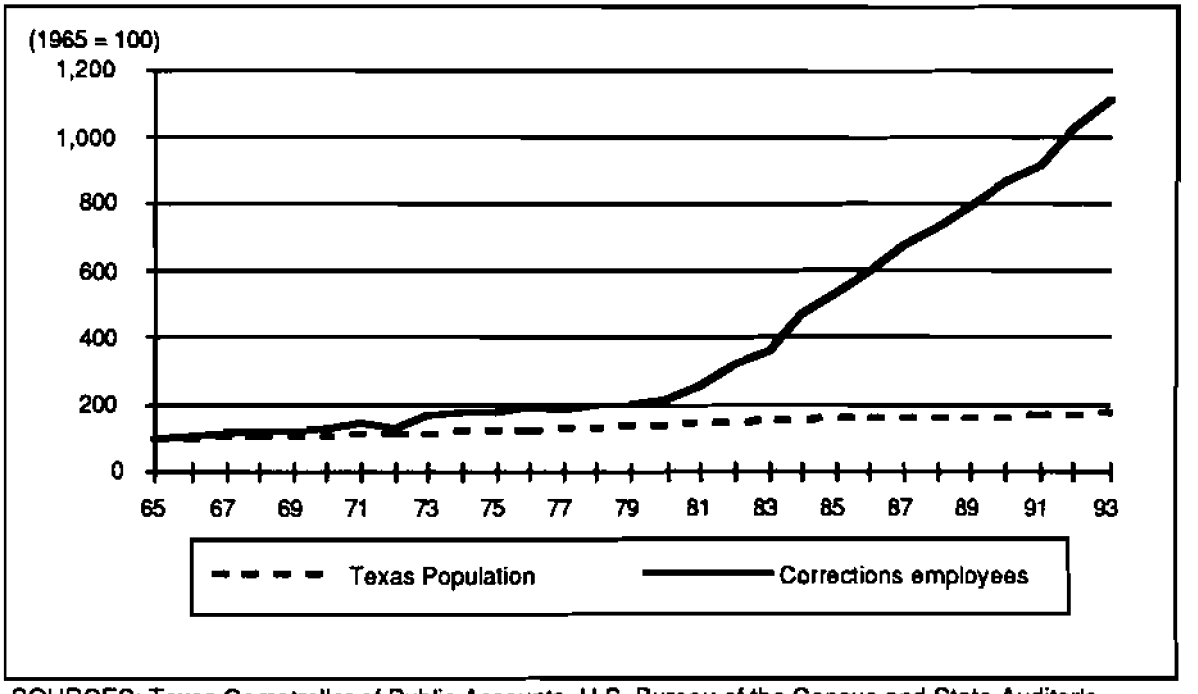
Corrections

State government employment in the corrections sector has risen by almost 27,000 since 1965. This is a sizable increase considering employment in this sector was 2,649 in 1965 and approximately 29,478 in 1993. This sector grew at an average annual rate of 9.0 percent compared to 2.0 for the state's population, as shown in Figure 2.2. Almost 16 percent of the new jobs created in state government since 1965 have been in corrections.

The *Ruiz v. Estelle* court decision, which required the state to provide more employees per inmate to meet constitutional standards, has been the primary contributor to growth in this sector. The petition was filed in 1972 and the

U.S. District Court ruled for the claimant. The court ruled that Texas' corrections system was unconstitutional. The judge ordered changes in nine areas—overcrowding, lack of adequate security and supervision, inadequate health care and treatment of handicapped and mentally retarded inmates, arbitrary discipline, lack of proper sanitation equipment and procedures, inadequate work safety and hygiene and the location and size of prison units.

FIGURE 2.3
Indexed Growth in Texas' Population and in Corrections Employment



SOURCES: Texas Comptroller of Public Accounts, U.S. Bureau of the Census and State Auditor's Office.

As the state tried to administer a constitutional prison system that had been ordered by the court, the state also had to accommodate an increasing number of felons. One reason for the increase in the number of felons entering the system can be attributed to the implementation of stricter drug laws. During the 1980s, the federal government initiated a "war on drugs" and increased

funding for law enforcement. This was in response to the publics outcry of the use of drugs and its associated violence.

This initiative resulted in more arrests, convictions and ultimately more persons being sent through the system. As a result, the corrections system became overcrowded in a system that had already been declared unconstitutional. The overcrowding problem forced state officials to release more inmates by granting them good time, probation and parole, an unpopular policy with the public. This policy requires an increase in the number of state probation and parole officers to supervise offenders. In turn, the public increased its demands for harsher sentencing.

To alleviate this situation, the state took steps—in the form of four bond elections since 1987—to build more prisons. Building new prisons means more administration, more maintenance and more prison guards to provide around-the-clock security. Therefore, the number of corrections employees should continue to increase until the overcrowding situation is relieved.

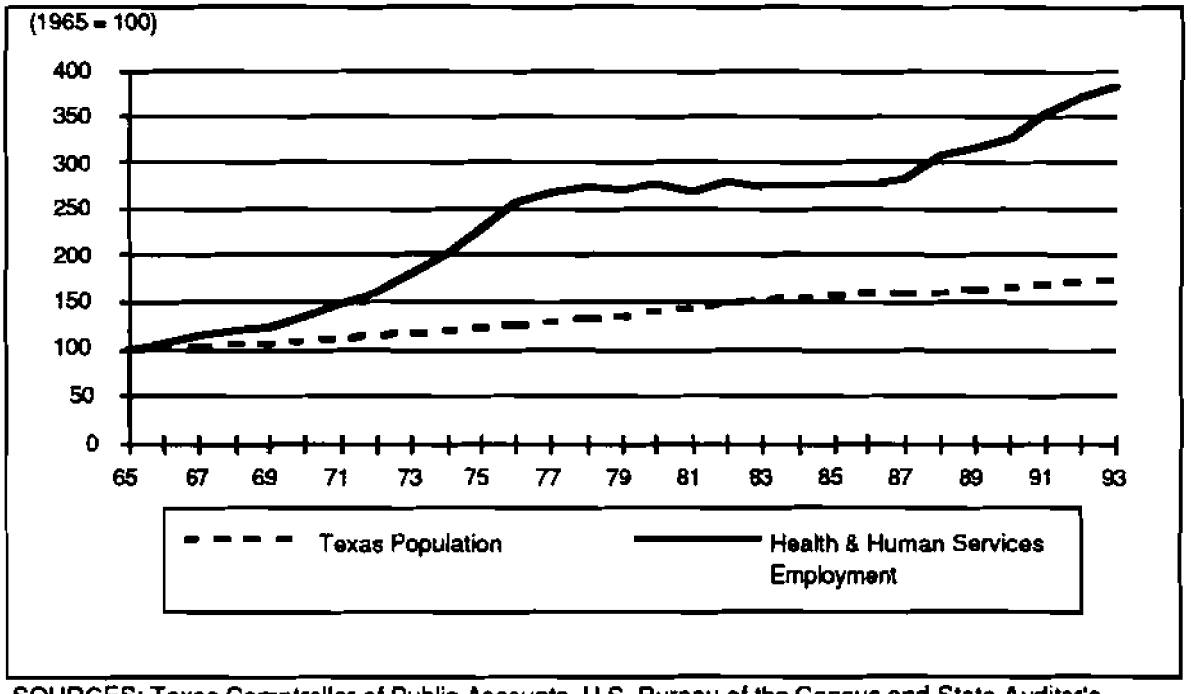
Health and Human Services

Employment in the health and human services (HHS) agencies totaled 19,300 in 1965 and 73,920 in 1993, an increase of 54,604 employees. During this time period, HHS employment grew at an average annual rate of 4.9 percent, well above that of the state's general population (see Figure 2.2). This sector accounted for about 25 percent of state jobs in 1965 and has increased to almost 30 percent in 1993. HHS employment growth accounted for about 32 percent of the overall growth during this period.

Throughout the 1970s, growth in total HHS employment increased dramatically. The primary reason for this growth is the enactment, or expansion,

of several federal and state HHS programs such as Medicaid (1965); Food Stamp Program (1972); Welfare Fraud Investigations (1974); Child Support Enforcement (1974); Aid to Families with Dependent Children (AFDC) expansion (1975); and Women, Infants and Children expansion (1975).

FIGURE 2.4
Indexed Growth in Texas' Population and in HHS Employment



SOURCES: Texas Comptroller of Public Accounts, U.S. Bureau of the Census and State Auditor's Office.

One reason for the recent growth in state HHS employment is broadened eligibility requirements for Medicaid and AFDC. In 1989 and 1990, the federal government expanded eligibility requirements for Medicaid to cover pregnant women and infants. There were approximately 1.9 million recipients in 1993.

Public welfare employment has also increased since the mid 1970s because of the expansion of protective services for children and for elderly and

disabled adults. Since 1975, public welfare employees have increased by 61.1 percent, from 13,321 employees in 1975 to 21,790 employees in 1993.

In addition, two court cases—*R.A.J. v. Jones* and *Lesz v. Kavanagh*—have considerably contributed to the growth in state hospital and state school employment since 1987. State hospitals and schools provide services for people with mental illnesses or mental retardation. In both cases, the court ordered the state to increase staffing because of unsafe staff-to-patient ratios and the inappropriate institutionalization of some clients. This forced the state to increase employment by about 4,000 employees in state hospitals and schools from 1987 to 1993 and move more clients into community settings.

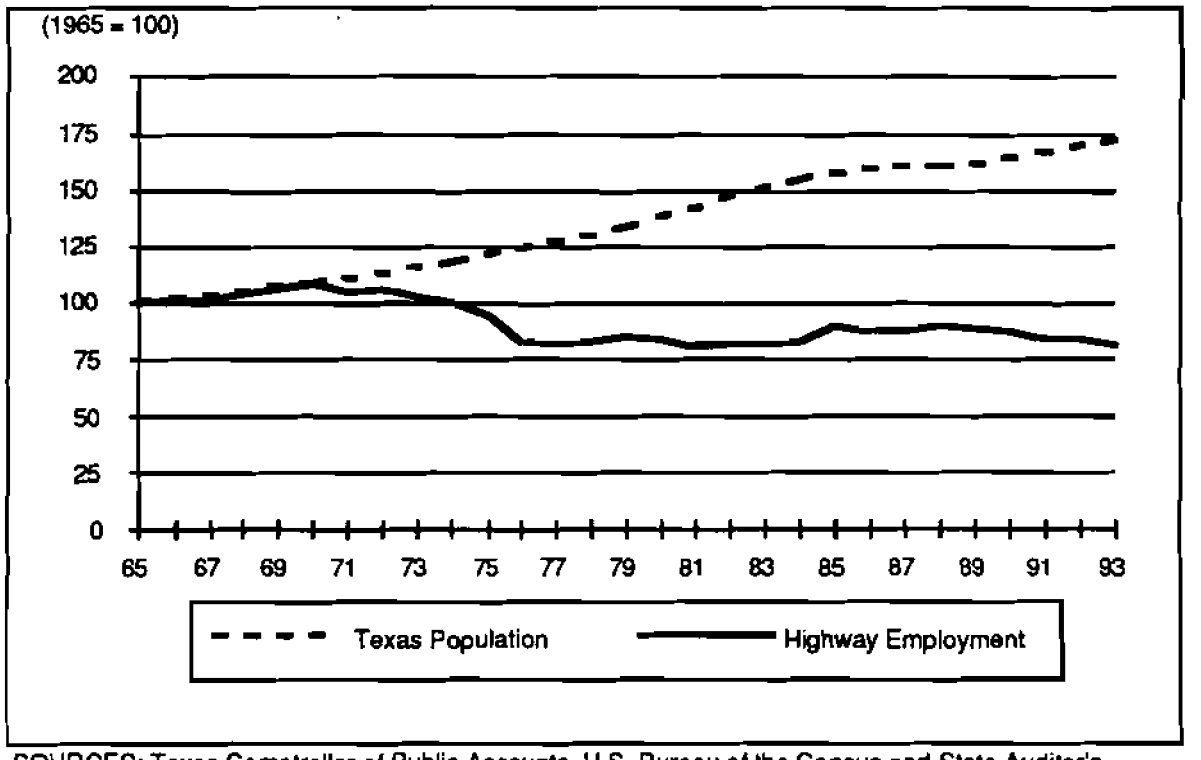
The use of computers, however, has slowed the growth of HHS employment. Computers help HHS employees process eligibility forms and keep track of client information. The increases in caseloads per HHS employee also have helped slow employment growth. In its 1991 Annual Report, for example, the Department of Human Resources estimated that Adult Protective Services caseloads were about double the optimum of 24 cases per worker. (Department of Human Services, 1991 Annual Report, p. 31)

Highways

Highways is the only function where employment growth has expanded more slowly than Texas' general population, as shown in Figure 2.4. In 1965, highways accounted for 17,517 employees. In 1993, this function had only 14,032 employees, a reduction of 3,485 employees. From 1965 to 1993, this function reduced its staffing levels by an average annual rate of 0.8 percent per year.

There are three primary reasons the state has operated a highway system serving an increasing number of drivers with essentially the same number of employees. First, with the near completion of the interstate highway system in the late 1970s, the Texas Department of Transportation (TxDOT) has changed its focus from expansion to improvement and maintenance. Second, automated computer drafting and design equipment and software have allowed TxDOT to accomplish more work with fewer employees. Third, TxDOT is increasingly using outside contractors for various services, which were formerly performed by state employees.

FIGURE 2.5
Indexed Growth in Texas' Population and in Highway Employment

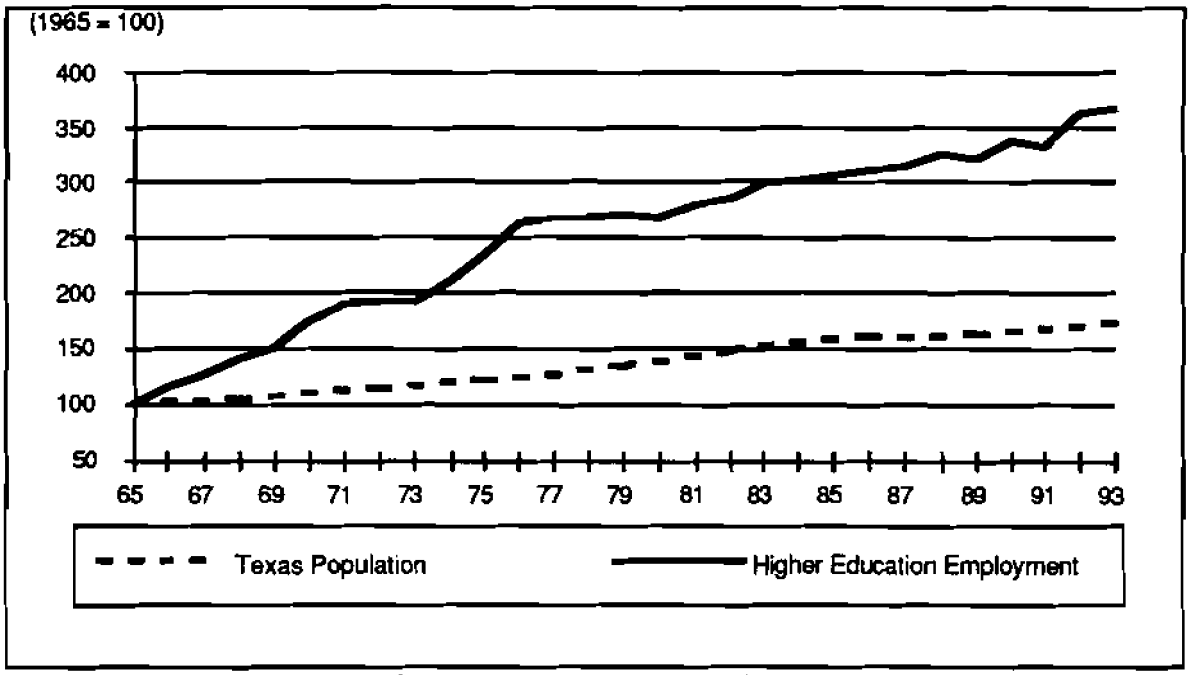


SOURCES: Texas Comptroller of Public Accounts, U.S. Bureau of the Census and State Auditor's Office.

Higher Education

As presented in Figure 2.5, state higher education employment growth was almost double the growth of the state's general population. Higher education employment has risen from 23,746 in 1965 to 87,298 in 1993. This is an average annual growth rate of 4.8 percent.

FIGURE 2.6
Indexed Growth in Texas' Population and in Higher Education Employment



SOURCES: Texas Comptroller of Public Accounts, U.S. Bureau of the Census and State Auditor's Office.

Higher education employment growth is affected by student enrollment in state institutions. In turn, state institution student enrollment is determined by community college and private institution enrollment, access to state institutions, tuition prices, student financial aid availability and economic conditions.

Employment in the higher education sector increased significantly from 1965 to 1976 and then increased slightly until 1985. The growth before 1985 can

be partially attributed to the good economic conditions in the state, mainly due to the oil industry. In addition, before 1985, the price of tuition at public universities was $4 per semester credit hour. However, the Texas economy took a downturn in the mid 1980s and tuition rates increased to $12 per semester credit hour in 1985. Tuition rates rose periodically between its 1985 rate to $22 per semester credit hour in 1993.

The 1985 tuition increase resulted in a decline in the number of students attending state-supported colleges and universities. Many students began attending school part-time, dropped out of school entirely or transferred to community colleges—where tuition rates are lower.

Other Functions of State Government

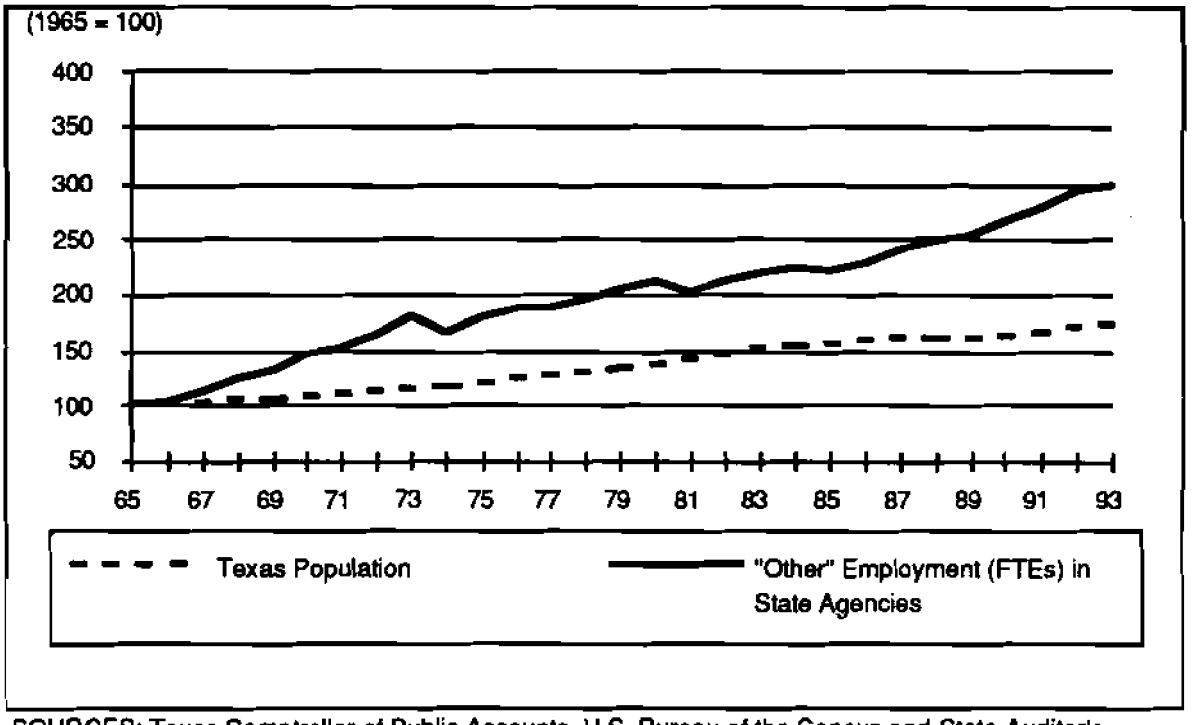
Functions other than corrections, HHS, highways and higher education has grown from 15,183 in 1965 to 45,280 in 1993, an increase of 30,097 employees. Employment in this sector grew at an average annual rate of 4.0 percent, which also outpaced the growth in the state's general population (see Figure 2.6).

Agencies carry out functions such as judicial and legal, natural resources, central administration, social insurance administration, miscellaneous, police, financial administration, and parks and recreation. From 1965 to 1987, most of the growth in the other sector can be attributed to police protection, financial administration and general legislative and administrative agencies.

For example, police protection agencies increased their staffs in the late 1960s and early 1970s; and considerably in the early 1980s. Financial administration agencies increased their staffs considerably in the late 1960s and large increases occurred in the mid 1970s and early 1980s. General Legislative

and administrative agencies have grown the fastest during this time period, however, the year-to-year growth has been fairly consistent. One reason for this increase is the transfer of child support enforcement from the Department of Human Services to the Attorney General's Office

FIGURE 2.7
Indexed Growth in Texas' Population and in "Other" Employment



SOURCES: Texas Comptroller of Public Accounts, U.S. Bureau of the Census and State Auditor's Office.

Natural resources, social security administration and miscellaneous agencies grew at about the same rate as the state's general population during this period. Natural resources agencies noticeably increased their staffs in the late 1960s and 1970s. Noticeable staff increases in social security administration agencies occurred in the early 1970s and 1980s. Miscellaneous agencies show staff increases during the late 1960s, early and mid 1970s and mid 1980s. For

more recent years, detailed information is available by agency, which better describes growth in the "other" sector.

Worker's compensation reform has increased the number of social insurance workers. State reforms in 1989 shifted the emphasis from litigation to administrative review for handling worker's compensation claims. In the natural resources sector, new federal environmental laws have created a need for state employees. The federal Clean Water Act and Clean Water Act require states to meet minimum air and water standards. These federal laws should continue to drive state employment once the Federal Clean Air Act and the Federal Clean Water Act requirements have been met. An additional 980 employees from miscellaneous agencies have been added in the "Other" category between 1988 and 1993.

Conclusion

In conclusion, state government employment has grown from about 78,400 employees in 1965 to just under 250,000 employees in 1993, an increase of about 172,00 employees. State employment grew at an average annual rate of 4.2 percent while the state's general population grew at an average annual rate of 2.0 percent.

This growth can be partially attributed to mandates by the courts and the federal government, which ordered safer conditions and more prison guards in state corrections facilities, safer staff-to-patient ratios in state hospitals and schools that serve mentally retarded and aged and disabled Texans and broadened eligibility requirements of federal programs, such as Medicaid and AFDC. Other reasons for this growth can be attributed to the increase in the state's general population.

CHAPTER 3
Review of the Literature

Introduction

This chapter presents the theoretical framework underpinning the entire research project. The literature sets forth the means for examining public sector growth. The purpose of this review of government growth literature is to identify the various predictors, or patterns, of growth in the public sector, specifically state government employment.

Most researchers have agreed on the existence of government growth, but few have agreed on explanations of the observed growth patterns. Very few studies have focused solely on state government employment in the U.S. Most studies have focused on government expenditure growth. Government growth models that measure expenditure patterns, however, have also been applied to measure the patterns of employment growth.

Government Growth

Examining government expenditures does not exhaust the possibilities of a concept as complex as the size of government, or its growth. Public sector presence is manifest in government expenditure, taxation, regulation, legislation, scope of programs and public employment. Not one of these alone is an adequate representation of the breadth of governmental activity, nor is any one of these better than the others. (Weiher and Lorence, 1991: 374) However, an examination of government employment should broaden understanding about government growth.

A cursory review of the literature reveals seven models for measuring the patterns of government growth, which have all been applied at the federal, state and local government levels. The seven models are Wagner's Law, intergovernmental grants, fiscal illusion, party control, bureau voting, demonstration effect and electoral competition.

Although each model contains within it a number of characteristics that have explanatory value for the growth of government, as will be discussed later in this chapter, one characteristic attribute is applicable to all models of government growth. This characteristic is the lag time between the relationship of a predictor variable and the size of government. For example, the increase in federal intergovernmental grants to a state may not immediately increase the size of government for that state, if it does so at all. It takes time for the state to allocate resources and hence, time to influence the size of government.

Andre Blais describes this lag effect of democratic control and policy implementation as "institutional inertia". (Blais, 1993: 41) In other words, government should grow, incrementally and monotonically. (Weiher and Lorence, 1991: 375) The vast majority of research on the growth of government have corrected for this phenomenon by using lagged variables, usually by one year, to account for this time period.

Beginning with Wagner's Law, below are explanations of the seven models of government growth that appear in the literature. The explanation of the models is given in equation form. In addition, the hypothesized relationship between the models' predictor variables and both total state government employment and governmental function employment are provided.

Wagner's Law

The earliest model for measuring the patterns in the growth of government was developed over 100 years ago by Adolph Wagner. Wagner's model is composed of two major contentions. First, it contends that government growth is a function of increased industrialization and economic development. In other words, the government's share of the economy increases as the personal income of its citizens rises. This is so because the elasticity of public expenditures is assumed to be greater than one. (Abizadeh, 1988: 15; Garand, 1988: 838; and Yousefi and Abizadeh, 1992: 322) As a society or community increases industrial and economic activity and experiences population growth, citizens will demand increased governmental regulation and intervention for societal interdependencies and market externalities.

Second, as a result of industrialization, there is a major increase in societal interdependencies that result in expansion of government. As economic development and industrialization proceed and population grows, becomes more densely settled and urbanized, types of interdependencies develop that are not well handled by private markets. (Lowery and Berry, 1983: 668) For example, urbanization, or increased population density, should lead to new forms of interdependencies, such as traffic jams, that may require government intervention, such as traffic lights.

The majority of previous research testing Wagner's Law has been applied to national governments and used to compare growth in underdeveloped, developing and developed countries. The literature does show, however, that the model has been applied to state governments in the United States. Analysis focusing on the states should isolate the influence of cultural and institutional differences and overcome dissimilar social, economic and political conditions that may be inherent in international studies.

Mahmood Yousefi and Sohrab Abizadeh recently conducted an empirical study of Wagner's Law as it applies to the states. They maintain that there are three reasons for increasing state government expenditures (i.e., government size): administrative and protective functions of the state, maintenance of the smooth operation of markets, and provision of more social and cultural goods. (Yousefi and Abizadeh, 1992: 323)

These individual reasons for the expansion of state government can be explained more clearly by looking at the different functions of state government. First, however, it is necessary to show how the model relates to state government employment growth. The best way to summarize this relationship is in equation form. Equation 3.1 summarizes the relationship between state government employment and the model's characteristics. The hypothesized relationships between the model and it's variables also are presented below.

$$\text{state employment} = f(\underset{+}{\text{personal income}}, \underset{+}{\text{population}}, \underset{+}{\text{dependency}}, \underset{+}{\text{urbanization}}, \underset{+}{\text{industrialization}}) \qquad \text{eq. 3.1}$$

Table A.1 in Appendix A lists different studies conducted by various authors on the application of Wagner's Law. The table also presents descriptive information about each study—type of data used, statistical method employed, dependent variable, independent variable and results. As can be seen in Table A.1, the literature is varied in regard to the support for Wagner's Law.

The separate reasons for the expansion of state government are better explained by looking at the separate functions of state government. For example, administrative duties should increase along with the incremental size of government, or along with government's institutional inertia. The increase in

administrative duties should influence the size of state government for all functions to some extent. The other category of state government should be influenced the most because this is where most of the large administrative agencies are categorized.

The majority of state workers that carry-out the protective obligation of state government are corrections employees. Therefore, the duty of the state to provide protection should influence the size of corrections employment.

Maintaining the smooth operations of markets implies the regulation of various industries operating in the state (i.e., banking or insurance). This responsibility lies primarily with the health and human service (HHS) agencies and agencies categorized in the "other" function. Therefore, maintaining the smooth operations of markets should increase the size of employment in these functions.

The provision of social and cultural goods means the provision of such services as education, welfare, and healthcare. These services may be provided by all functions of state government, but primarily fall within the parameters of HHS and higher education. The dependency characteristic of Wagner's Law should have the highest correlation to the size of government when considering the provision of social and cultural goods.

Social dependencies have also been associated with the increase in urbanization, population growth and industrialization, which may require increased governmental regulation and intervention. (Garand, 1988: 838) Table 3.1 shows the hypothesized relationships between the characteristics of Wagner's Law and functional state government employment.

Economic and demographic characteristics are not the only factors that may cause state government employment to increase. The federal government, through its transfer of federal funds to state and local governments, also may

help in determining the size of government employment. This influence is described below in the intergovernmental grants model.

TABLE 3.1
Hypothesized Relationships for Wagner's Law

Predictor Variables	Correct-ions	Health & Human Services	Higher Education	Highways	Other
Personal income	+	+	+	+	+
Population	+	+	+	+	+
Dependency	+	+	+	+	+
Urbanization	+	+	+	+	+
Industrialization	+	+	+	+	+

Intergovernmental Grants

The intergovernmental grant explanation attributes state government growth to the influx of intergovernmental grants from the federal government. Intergovernmental grants could result in one of two outcomes for state and local governments. The grants could provide state and local governments with more money which contributes to the growth of state and local government. The grants also could be utilized to reduce the state or local government's revenue burden while allowing them to maintain their current spending level. (Garand, 1988: 840).

If this first explanation is true, state and local governments would have additional revenues to provide new services or increase the amount of services already provided. In many instances, this means employing more government workers to provide these services.

Assar Lindbeck asserts that the recent federal transfers to state and local governments are seen mainly as a consequence of the emergence of a highly diversified socio-economic structure. This is accompanied by falling information costs between voters and politicians, receding class loyalty in voting and related fierce political competition. As a result, the original intention of the federal government to provide basic economic security, has gradually developed into a "free-for-all competition for favors from the state, with 'every politician trying to buy votes from everybody.'" (Lindbeck, 1985: 327)

The intergovernmental grants model may best be described in equation form. Below in equation 3.2, the intergovernmental grants model presents the relationship of the model with state government employment. The hypothesized relationship is also shown.

$$\text{state employment} = f(\underset{+}{\text{federal grants}}) \qquad \text{eq. 3.2}$$

As shown in Table A.2 in Appendix A, previous research shows substantial support for the intergovernmental model. Gregory Weiher and Jon Lorence found that federal intergovernmental grants were positively related with state government employment. (Weiher and Lorence, 1991: 379) Likewise, James Garand found a very strong, positive relationship. Ninety-two percent of the states reviewed showed a positive relationship. (Garand, 1988: 846)

At the state and local government level, Philip Grossman in his analysis found a strong, positive relationship between federal intergovernmental grants and the number of local government employees. His results were significant at the 90 percent and 95 percent levels. (Grossman, 1989: 66) Grossman found that for state and local governments, grants are more likely to be used to increase expenditures than to reduce general tax levels. Mark Schneider's state

and local government analysis showed a positive relationship. (Schneider, 1992: 105)

David Lowery and William Berry also found that federal grants had a positive effect on the size of government. Their study indicates that a low reliance on intergovernmental aid in the funding of government services is associated with a smaller-sized government. (Lowery and Berry, 1983: 683)

To the contrary, David Joulfaian and Michael Marlow found that federal intergovernmental grants showed a negative relationship with state and local government size. Their analysis focused on what they call the "decentralization hypothesis", which posits that the more competitive, or decentralized, a government structure is, the smaller the size of the government will be. (Joulfaian and Marlow, 1991: 1094-95). They found that federal grants to state and local governments do not offset the effect of decentralization on total government, and therefore do not contribute to the growth of government. (Joulfaian and Marlow, 1991: 1100-01)

The only function of state government that should show a negative relationship between federal intergovernmental grants and state government employment is corrections employment. As shown in Table 3.2, the hypothesized relationship should be negative. This is predicted to be negative because federal funds are not used to finance state prison systems.

The injection of federal funds to finance HHS should, however, show a strong, positive relationship between federal intergovernmental grants and HHS employment. There should be a strong relationship because the majority of federal funds in Texas got to Medicaid recipients. (Texas Comptroller of Public Accounts, *Medicaid*, 1993: 3) Many other state employees in the HHS field are paid from federal funds to administer programs, such as job training programs for welfare recipients.

Highways employment should also show a positive relationship with federal intergovernmental grants. This is so because a large part of highway funding comes from the federal government. Higher education and the other government function should also show positive relationships.

TABLE 3.2
Hypothesized Relationships for Intergovernmental Grants

Predictor Variables	Correct-ions	Health & Human Services	Higher Education	Highways	Other
Federal grants	-	+	+	+	+

Another explanation of government growth that centers on funding issues is the fiscal illusion model. This model, however, concentrates on the method of financing. The model is presented below.

Fiscal Illusion

The fiscal illusion model relates government growth to characteristics of a government's revenue collection system that hide the cost of providing public goods. This causes citizens to underestimate the cost of providing state government goods and services. Citizens in turn demand more than if they could accurately estimate its value. (Garand, 1988: 839) The greater extent of these "illusion-inducing" characteristics in a tax system, the greater the size of government. (Lowery and Berry, 1983: 673)

Several characteristics of a tax system have been noted as illusion-inducing. Withholding provisions—deductions from paychecks such as an

income tax—are seen as illusory. Indirect taxes are seen as illusory and expansionary because they are passed on to consumers in the form of increased prices. Citizens usually do not estimate the tax element of the price they pay. An example of an indirect tax is a corporate income tax. Debt financing is seen as illusion-inducing because taxpayers discount the future tax liabilities created by deficits. Last of all, complex tax systems—dependent on a large number of separate taxes—are seen as illusion-inducing. This is so because taxpayers are less likely to be able to comprehend their complexity and estimate the "true" costs of government services. (Garand, 1988: 839 and Lowery and Berry, 1983: 673-74)

Showing the fiscal illusion model in equation form may help to describe its components. The model's characteristics and their relationship to state government employment are presented in equation 3.3. The hypothesized relationships are also provided.

$$\text{state employment} = f(\underset{+}{\text{corporate tax}}, \underset{+}{\text{state debt}}) \qquad \text{eq. 3.3}$$

Previous research testing the fiscal illusion model shows limited support, as shown in Table A.3 in Appendix A. James Garand found a lack of systematic support for the model after applying it to tax systems in the 50 states. The support was weak and inconsistent. Only two states showed support for all three fiscal variables. (Garand, 1988: 839) David Lowery and William Berry also found a lack of support. Their testing of the model showed that withholding (i.e., income tax) and debt financing of government expenditures did not appear to have the illusion-inducing character. The complexity of the tax systems was positively related to government expenditures, however, the relationship was extremely weak. (Lowery and Berry, 1983: 682-83)

For the different functions of state government, the relationship between the corporate tax, state debt and the complexity of the state's tax system are expected to be positive, as shown in Table 3.3. They are expected to be positive because, with the exception of highways financing, all of these methods of finance are used for all state government functions. Debt financing is not used to finance the construction of highways. The relationship is expected to be positive, however, because citizens may not realize that financing of the state's highway system does not include the obligation of debt.

TABLE 3.3
Hypothesized Relationships for Fiscal Illusion

Predictor Variables	Correct-ions	Health & Human Services	Higher Education	Highways	Other
Corporate tax	+	+	+	+	+
State debt	+	+	+	+	+

Party Control

The explanation of party control is supported by the premise that the size of government, and the extent of government growth, is roughly determined by the electorate through partisan control of the government. (Blaise, 1993: 40) The votes of the electorate can be viewed as mirroring the changes in public tastes—public demand. If the electorate chooses a liberal party, it would indicate that a more socialized provision of goods and services—increased government output—is desired. A conservative victory, on the other hand, would indicate a desire for constant or declining government output. This model assumes that the democratic party is liberal and the republican party is conservative.

Applying this model to state government would require testing the relationships between the political party of the governor and the size of state government. Likewise, the same relationship can be examined between the majority political party in the legislature and the size of state government.

The political party model and its relationship to state government employment are presented below in equation 3.4. The hypothesized relationship between the model's characteristics and state government is also given in equation 3.4.

$$\text{state employment} = f(\underset{+}{\text{liberal senate}}, \underset{+}{\text{liberal house}}, \underset{+}{\text{governor}}) \qquad \text{eq. 3.4}$$

Previous studies on party control show limited support for the model, as shown in Table A.4 in Appendix A. One primary reason for the limited support is that of the model's assumption that different political parties have different policy decisions. (Garand, 1988: 839) Lowery and Sigelman also contend that there is lack of support for partisan differences among voters on specific spending preferences. (Lowery and Sigelman, 1982: 229)

Counter to the limited support of this model, Andre Blais in his study of political parties and the size of government, concluded that parties of the left do spend more than parties of the right. Further, the difference emerges for majority governments that have been in power over an extended period of time. (Blais, 1993: 43)

It is hypothesized that the different functions of state government should show a positive relationship between the model's characteristics and state government employment. In other words, the number of state government employees should increase because of the political partisanship of the legislature or the governor. If the general hypothesis that total state government

employment is determined by party control holds true, then individual functions of state government should also show a positive relationship. These relationships are summarized in Table 3.4.

TABLE 3.4
Hypothesized Relationships for Party Control

Predictor Variables	Correct-ions	Health & Human Services	Higher Education	Highways	Other
Legislature political partisanship	+	+	+	+	+
Governor political partisanship	+	+	+	+	+

Bureau Voting

The bureau voting model has a similar ideology to the party control model in that the liberal party is assumed to desire increased government for the provision of government goods and services. This model, however, applies the political affiliation of the liberal party to all bureaucrats. Government employees are assumed to have advantages in voting power over other citizens.

Implicit in the model's theory is the assumption that government employees are self-interested actors that want increased government spending for their own well-being. (Joulfaian and Marlow, 1991: 222) There is evidence that public employees turn out to vote at higher rates and tend to be somewhat more liberal than the general population. (Lowery and Berry, 1983: 674) Spending preferences of bureaucrats are also said to have a stronger impact on public policy than spending preferences of other citizens. (Bush and Denzau, 1977: 94)

Previous studies have tested the relationship of the proportion of government employees (federal, state and local) to the size of the state's population or voting age population. (Garand, 1988: 840) All levels of government should be included because all government employees, no matter which level of government they are employed in, will have expansive government preferences if the theory holds true. For the purposes of this research, however, the relationship of the proportion of federal, state and local government employees combined as a percentage of the votes cast will be used. The relationship between the model and state government employment is presented in equation 3.5. The hypothesized relationship is also presented.

$$\text{state employment} = f(\text{voting government employees}) \qquad \text{eq. 3.5}$$
$$+$$

As Table A.5 in Appendix A shows, empirical evidence shown in the literature supports this model of government growth. In their analysis, David Lowery and William Berry, however, found that there was negative support for this model. (Lowery and Berry, 1983: 683) Jaarsma, Schram and Van Winden also found little evidence that bureaucrats have a higher voting participation than non-bureaucrats. They added, however, other groups who depend on public money for their income—retired and disabled individuals—tend to have higher voter turnouts. (Jaarsma, Schram and Van Winden p. 185)

William Berry found that government growth results from electoral power of government employees. He also found that government growth results from public misperception of the costs, bureaucratic monopoly of information, a pro-growth bias in election years, interest group political pressure and decentralized intergovernmental structures that separate spending and the raising of revenue (Berry, 1987: 78)

The relationship between the bureau voting model and the different functions of state government should also be positive. These relationships are summarized in Table 3.5.

TABLE 3.5
Hypothesized Relationship for Bureau Voting

Predictor Variables	Correct-ions	Health & Human Services	Higher Education	Highways	Other
Public sector voters	+	+	+	+	+

Electoral Competition

The premise of the electoral competition model is that electoral candidates will simply compete for votes. One of the largest pools of potential voters is the poor. Therefore, electoral candidates have an incentive to pursue policies that benefit the poor. Policies that benefit the poor, or liberal policies as discussed earlier in this chapter, are also policies that encourage government growth. (Lowery and Berry, 1983: 675)

Other researchers have applied this assumption that candidates will compete for votes by supporting policies that benefit the poor to the cycle of elections and the size of government. Tufte, for example, found that elected officials anticipate the coming of an election and adopt spending policies to stimulate the economy during pre-election periods. (Tufte, 1978: 123) These assumptions suggest that the presence of elections and a high level of interparty competition should encourage government growth. In addition, the level of interparty competition and the presence of elections should interact in influencing

the scope of government activity. However, as shown in Table A.6 in Appendix A, the literature does not show very supportive empirical evidence for this model.

The electoral competition model and its relationship to state government employment are presented below in equation 3.6. The hypothesized relationship between the model's characteristics and state government is also given in the equation.

$$\text{state employment} = f(\text{interparty competition}, \text{gubernatorial election}, \text{off-year election}) \qquad \text{eq. 3.6}$$

The relationship between the electoral competition model's characteristics and functional state government employment are expected to be positive for all of the model's characteristics. The hypothesized relationships are summarized in Table 3.6.

TABLE 3.6
Hypothesized Relationships for Electoral Competition

Predictor Variables	Correct-ions	Health & Human Services	Higher Education	Highways	Other
Interparty competition	+	+	+	+	+
Gubernatorial election year	+	+	+	+	+
Off-year election year	+	+	+	+	+

Demonstration Effect

The demonstration effect model is one of the least developed models of government growth. The logic of the model is that societies and individuals are assumed to tolerate a given level of regional and class inequity in the provision of government goods and services. The more information that is available to citizens concerning these inequities, the more likely citizens will voice their concerns regarding an unequal distribution of resources. (Lowery and Berry, 1983: 672) Lowery and Berry's results are shown in Table A.7 in Appendix A.

Daniel Tarschays suggests that the expansion of mass communication—through increased access to television—may inform citizens and regions of existing inequities. (Tarschays, 1975: 18) From this assertion, it reasonable to conclude that citizens may learn of existing inequities through the medium of print—the circulation of newspapers. Informing citizens of existing inequities should encourage them to demand equality in the provision of government goods and services.

One way citizens may exhibit their displeasure with existing inequities is through rioting. Urban riots are presumed to be demonstrations of dissatisfaction with existing inequities that might inform the larger public about the scope of the inequities. (Jennings, 1979: 416) Therefore, citizens may choose to show their dissatisfaction through often times violent means.

The demonstration effect model, as discussed in David Lowery and William Berry's study, is presented in equation 3.7. The hypothesized relationship between the model's characteristics and state government growth also are presented.

$$\text{state employment} = f(\underset{+}{\text{communication}}, \underset{+}{\text{riots}}) \qquad \text{eq. 3.7}$$

The hypothesized relationships between the characteristics of the model and the different functions of state government are summarized in Table 3.7. It is assumed that both communication and riots will be positive for all functions of state government.

TABLE 3.7
Hypothesized Relationships for Demonstration Effect

Predictor Variables	Correc-tions	Health & Human Services	Higher Education	Highways	Other
Communications	+	+	+	+	+
Riots	+	+	+	+	+

Conclusion

In conclusion, this chapter has summarized the literature that discusses various explanations of government growth. More precisely, the seven government growth models have been explained. Each model's predictor variables and how they relate to public sector size has been described. The results of testing these models in various studies also have been summarized. The next chapter will present the methodology used to test the relationship between the government growth models mentioned in this chapter and Texas state government employment.

CHAPTER 4
Research Methodology

Introduction

This chapter reviews the methodology used to test the hypotheses and sub-hypotheses presented in Chapter 3. First, a review of the data and sources will be discussed as well as the strengths and weaknesses of the data. Second, an explanation of how the data was converted into measurable predictor variables and how they were operationalized will be presented. Third, a discussion of the types of statistical techniques used in the analysis will be presented.

Data

Data for this analysis was obtained from various sources, as shown in Table 4.1 later in this chapter. Employment data for the years 1965 to 1991 was obtained from various issues of *Public Employment* by the U.S. Bureau of the Census. For 1992 and 1993, employment data was obtained from the *Quarterly Report of Full-time Equivalent State Employees*, by the Texas State Auditor's Office. Other data sources include the office of the Texas Comptroller of Public Accounts and the *U.S. Statistical Abstract* published by the U.S. Bureau of the Census. Beginning with employment data, the sources of data and a discussion about the data is presented below.

Every October, the Census Bureau surveys every state and local government entity in Texas to determine the number of full-time equivalent (FTEs) employees. The Census Bureau breaks-out FTEs by their major

functions, which include higher education (instructional and other), libraries, public welfare, hospitals, health, social insurance administration, highways, air transportation and/or water transport and terminals, police protection, corrections, natural resources, parks and recreation, judicial and legal, financial and other government administration and public utilities. For this analysis, these governmental functions were merged to form five primary functions—corrections, health and human services, highways, higher education and "other" governmental agencies.

The Census Bureau did not calculate FTEs for 1985 because of a change in the formula for calculating FTEs. Therefore, 1985 FTEs were estimated for this analysis. Before 1985, the Census Bureau calculated FTEs by dividing the full-time payroll amount of each agency into the total payroll for that agency and then multiplying the resultant quotient by the number of full-time employees. This represents the number of full-time workers that could be employed with no increase in total salary and wage costs if all personnel were engaged on a full-time basis at the average October pay prevailing for full-time employees. (U.S. Bureau of the Census, *Public Employment,* 1981, p. 1)

After 1985, FTEs were calculated by dividing the "part-time hours paid" by the standard number of hours for full-time employees in the particular government and then adding the resulting quotient to the number of full-time employees. This represents the number of full-time employees that could have been employed if the reported number of hours worked by part-time employees had been worked by full-time employees. (U.S. Bureau of the Census, *Public Employment* 1987, p. 34) The Census Bureau has not published FTEs for 1992 and 1993.

Texas State Auditor FTE data was used for 1992 and 1993. The Auditor also surveys state agencies in Texas to determine the number of FTEs in state

government. They calculate FTEs by dividing the total number of hours worked by all employees during the period in question by the standard number of hours worked by a full-time employee. (Office of the State Auditor, *Quarterly Report of Full-time Equivalent State Employees, Quarter ending November 30, 1993*, p. 37). Auditor's Office FTE data is only available for the first quarter of 1988 (or for the quarter ending November 30, 1987) to present. A break-out of agencies by function was obtained from the Census Bureau so Auditor's Office FTEs could be categorized in these functions.

However, Census Bureau data is obtained in October and is applied to that year. State Auditor data is gathered for the state's fiscal year, which begins September 1, of each year. This causes three distinct problems with the employment data used in this analysis.

First, calculations of FTEs for the two sources vary to a degree.

Second, the number of FTEs surveyed by the Census Bureau in October for a particular year will vary from the calculation of FTEs by the State Auditor because of their use of the state's fiscal year, as opposed to the Census Bureau's calendar year. For example, the FTEs collected by the Census Bureau on October of 1987 were published as 1987 FTEs the following year. The number of FTEs counted by the State Auditor for this month was included in the first quarter (September, October and November) of fiscal year 1988.

Third, the Census Bureau surveys state agencies once a year and applies the FTE number to employment for that year—which is a snapshot of employment. The State Auditor surveys state agencies four times a year (every quarter of the state's fiscal year), and the quarterly FTEs are averaged to determine an FTE count for that fiscal year. Because of this variation in surveys, Census Bureau data will not take into account the fluctuations in employment at some state agencies. For example, higher education institutions should have

fluctuations in employment during the summer months. Therefore, there is some variance in the 1965 to 1991 and 1992 to 1993 employment data used in this analysis.

The Texas Comptroller's Office also served as a primary data source for this analysis. Texas population data—total state population, Texans under the age of 18, Texans age 65 and older, and Texans living in metropolitan statistical areas (MSAs)—were obtained from the Comptroller's Office. Texas personal income, Texas manufacturing gross state product (GSP) and total GSP also was obtained from the Comptroller's Office. The above mentioned data was used for variable measurement, which will be discussed in the following section, for the Wagner's Law model. The data used for this model is based on the state's fiscal year, as opposed to a calendar year. Therefore, there is some comparability problems with the Census Bureau employment data from 1965 to 1991.

Data used for the intergovernmental grants model also was obtained from the Comptroller's Office. Both total state expenditures and the amount of federal funds received by the state were collected. This data was used to calculate variable measurements for this model.

The Comptroller's office was the primary source of data used for the fiscal illusion model. Franchise tax collections, total state debt outstanding and total tax collections were collected from this source. Texas' total outstanding debt was obtained from various editions of the Comptroller's Office annual reports. Variable measurements for this model were calculated using this data.

Additional population data was obtained from the Comptroller's office for the bureau voting model—Texas voting age population—that consists of Texans 18 years of age or older. State and local government FTEs from 1965 to 1992 were obtained from various issues of the *Public Employment*. State and local FTEs for 1992 and 1993 were estimated using Census Bureau data for prior

years. In addition, federal paid civilian employees were obtained from various editions of the *U.S. Statistical Abstract.* This data was used to calculate a variable measurement for this model.

Various editions of the *Texas Almanac* were a source of information for the party control, demonstration effect and electoral competition models. The number of democrats in the Texas house of Representatives and the Texas Senate, as well as the number of Governors from the democratic party were obtained from this source for the party control model. This data was converted into variable measures for this model.

The percent of U.S. households with television sets and the daily and Sunday circulation of newspapers in Texas were obtained from various editions of the *U.S. Statistical Abstract.* This data was used to calculate variable measures for the demonstration effect model.

Operationalized Variables

In most cases, the data collected was already in a form that was transferred directly into the research analysis and is a straightforward representation of the concepts noted in the earlier presentations of the models. In other cases, the data had to be converted into a measurable variable appropriate for this analysis. Therefore, the remainder of this section will comment on data conversions that allow for operationalization of variables in this analysis.

First, predictor variables for each model were regressed against each other to determine if they were correlated with each other. When predictor variable are correlated, multicollinearity occurs. (Dileonardi and Curtis, 1992: 126). The standard deviations of the coefficients may be overestimated, which

results in a t-score that is smaller than it should be, and some independent variables appear not to be linearly related to y when in fact they are. (Keller, Warrack, and Bartel, 1990: 770) In other words, the predictor variables that have a strong functional relationship with the dependent variables crowd-out the relationships of other predictor variables. Table 4.1 depicts the variable measurements, expected outcomes and data sources.

TABLE 4.1
State Government Growth Models, Variable Measurements, Expected Outcomes and Data Sources

Model	Variables	Hyp.*	Variable Measurement	Data Source
	Dependent Variables			
	Total employment		Total FTE employment	U.S. Census Bureau, Public Employment & Texas State Auditor's Office
	Corrections employment		Corrections FTE employment	
	HHS employment		HHS FTE employment	
	Higher education employment		Higher Education FTE employment	
	Highways employment		Highways employment	
	"Other" employment		"Other" FTE employment	
	Predictor Variables			
Wagner's Law	Personal Income	+	Total Texas personal income (adjusted for inflation)	U.S. Census Bureau & Texas Comptroller of Public Accounts
	Population	+	Texas Population	Texas Comptroller of Public Accounts
	Categorical population	+	Percentage of urban population (living in metropolitan statistical areas) and percentage of Texas population under the age of 18 or older than age 65	U.S. Census Bureau & Texas Comptroller of Public Accounts
	industrialization	+	Texas manufacturing GSP as a percent of Texas total GSP	Texas Comptroller of Public Accounts
Inter-govern-mental Grants	Federal Grants	+	Total intergovernmental grants-in-aid to Texas as a percent of total state government expenditures	U.S. Census Bureau & Texas Comptroller of Public Accounts

Table 4.1 Continued

Model	Variables	Hyp.*	Variable Measurement	Data Source
Fiscal Illusion	Corporate taxes	+	Total corporate franchise tax revenues as a percent of total state tax revenues	U.S. Census Bureau & Texas Comptroller of Public Accounts
	State debt	+	Total Texas state government debt outstanding as a percent of total state government expenditures	Texas Comptroller of Public Accounts
Party Control	Legislature	+	Dichotomous variable for political partisanship of Texas House of Representatives & Texas Senate (1 = democrat & 0 = republican)	Texas Almanac
	Governor	+	Dichotomous variable for political partisanship of Governor (1 = democrat & 0 = republican)	Texas Almanac
Bureau Voting	Voting federal, state & local government employees	+	Number of federal, state & local government employees in Texas as a percent of Texas voting age population	U.S. Census Bureau & Texas Comptroller of Public Accounts
Electoral Competition	Interparty competition	+	1 - [2 | (1/4 HS + 1/4 SN + 1/2 GOV -.5) |]; HS = percent of seats in Texas House of Representatives controlled by democrats, SN = percent of seats in Texas Senate controlled by democrats, & GOV = 1 if the governor is a democrat & = 0 if a republican	Texas Almanac
	Governor Election	+	Dichotomous variable that = 1 in gubernatorial election years and 0 if otherwise	Texas Almanac
	Off-year-election	+	Dichotomous variable that = 1 in off-year election years and 0 if otherwise	Texas Almanac
Demonstration Effect	Communication	+	Percent of U.S. households with television sets	U.S. Census bureau & Statistical Abstract of the U.S.
	Riots	+	Number of urban riots and strikes in the U.S.	Statistical Abstract of the U.S.

* Hypothesis.

Dependent Variables

The dependent variables—FTEs for total state government, corrections, health and human services, higher education, highways and "other" government agencies—did not need variable conversion for this analysis. The following predictor variable measurement conversions are discussed as they relate to the government growth model they are applied to. The raw data for the dependent and independent variables for the years 1965 to 1993 are shown in Appendix B.

Wagner's Law

The first variable conversion required for Wagner's Law was adjusting Texas personal income for inflation. Personal income was adjusted for inflation by using the U.S. urban consumer price index (CPI) provided by the Comptroller's Office. Personal income was adjusted in 1992 dollars. For example, Texas' 1965 adjusted personal income was calculated by multiplying 1965 unadjusted personal income by the 1992 CPI and dividing the result by the 1965 CPI.

Second, Texas population variables—general population, elderly, young and living in MSAs—were highly correlated, so the categorical population variables were combined to form one predictor variables. The categorical population variables include: elderly, young and those living in MSAs.

Intergovernmental Grants

For the intergovernmental grants model, the amount of federal funds received by the state and the amount of total state expenditures were used to calculate federal funds as a percent of total state expenditures. This measure was used to determine the impact of funds received by the federal government on the expenditures of the state, and ultimately state employment.

Fiscal Illusion

Franchise tax collections and total state debt outstanding in Texas were used for the fiscal illusion model. The conversion of franchise tax collections to franchise tax collections as a percent of total state tax collections was used to determine the impact of corporate taxes in the total tax system, and ultimately its impact on state government employment. Total state debt outstanding was converted to total state debt as a percent of total tax collections. This measurement was used to represent the impact of using debt as a method of financing state government goods and services.

Party Control

The number of democratic house members was used to calculate the percent of total house seats occupied by the democratic party for the party control model. Likewise, the number of democratic senate seats was used to calculate the percent of total senate seats occupied by the democratic party. The democratic party is said to favor liberal, government expansion policies. The number of democratic house members and the number of democratic senate members are highly correlated, so they were combined to form a predictor variable for the legislature. A dichotomous variable was used to represent the political affiliation of the governor (0 representing the republican party and 1 representing the democratic party).

Bureau Voting

The number of state and local government FTEs was combined with the number of federal paid civilian employees in the state. The resulting federal/state/local government employees were used for the bureau voting model

to determine the number of public sector workers as a percent of the voting age population.

Demonstration Effect

Daily and Sunday newspaper circulation was dropped for this model because it was highly correlated with the percentage of U.S. households with TV sets. Therefore, only TV sets and U.S. urban riots was used for this model.

Electoral Competition

For the electoral competition model, gubernatorial election years were converted to a dichotomous variable that equals 1. Non-gubernatorial election years were converted to a dichotomous variable that equals 0. A dichotomous variable that equals 1 has been applied to off-year election years and 0 if otherwise. Gubernatorial and off-year elections were not converted into one variable measurement in order to test their independent relationships with state government employment.

The data used for the interparty competition (IPC) variable—number of house and senate seats controlled by democrats and the political party affiliation of the governor—were converted for variable measurement for this analysis. The conversion of this variable is described best in equation form—Equation 4.1, presented below. In the equation, HS is equal to the percent of seats in the Texas House of Representatives controlled by democrats, SN is equal to the percent of seats in the Texas Senate controlled by democrats and GOV is equal to 1 if the governor is a democrat and 0 if the governor is a republican. (Lowery and Berry, 1983: 679)

$$IPC = 1 - [\, 2 \,|\, .25\,(HS) + .25\,(SN) + .5\,(Gov) - .5 \,|\,] \qquad \text{eq. 4.1}$$

Statistical Methods Used

The data and variable measurements provided in the first section of this chapter are operationalized within the conceptual models provided in the preceding chapter. This section explains how the predictor variables are used to measure the effects of the government growth models on total state government employment and governmental function employment. The techniques used to test the hypotheses were multiple and simple regression analysis (which will be discussed later in this section). The statistical package MYSTAT was used to calculate beta coefficients, t-statistic, R^2 and F-ratios for each model.

Before conducting the regression analysis, however, the independent variables were lagged to account for the lag-time between state policy decisions and their outcomes. It would be inappropriate to assume that government growth models suggest that the current number of government employees is a function of current conditions. Decisions underlying the number of government employees are made prior to the actual policy outcomes.

The analysis began by conducting a multiple regression analysis, which tests the relationship between the combination of the multiple predictor variables of each model and the dependent variables, for each model with total state government employment. Multiple regressions were then conducted for the various governmental functions. By examining the outcomes of the calculation of the beta coefficients and t-scores, the relationships between the dependent and independent variables were determined.

One strength of multiple regression analysis is that it provides a means of analyzing a situation where a dependent variable is affected simultaneously by several predictor variables. This technique also allows researchers to evaluate large amounts of data. In addition, this method is a good explanatory technique. (Dileonardi and Curtis 1992, p. 107) These are the reasons these techniques

were chosen for this analysis. One weakness of multiple regression analysis, as was mentioned earlier, is multicollinearity.

Coefficients of Determination, Significance Variance Test

The beta coefficient indicates that the variation in the dependent variable is explained by the variation in the predictor variable(s). (Keller, Warrack, and Bartel, 1990: 748) The coefficient of determination is represented by r^2. For example, an r^2 of .648 means that the predictor variables represent 64.8 percent of the variation in the dependent variable is explained by the variation in the predictor variable(s). The remaining 35.2 percent is unexplained. Any r^2 greater than .25 is worth reporting. An r^2 of .92 is both strong and statistically significant. (Dileonardi and Curtis 1992, p. 122) The results of the simple and multiple regression analysis, their correlation and variance are determined by the tests of significance.

In multiple regression, each predictor variable can be tested to determine if there is evidence of a linear relationship between the predictor variable(s) and the dependent variable. The t-statistic tests the significance of such a relationship. It also tests whether the regression model is reasonable. (Keller, Warrack, and Bartel, 1990: 758)

To test the variance in the relationship among the set of predictor variables and the dependent variable, the F-ratio is calculated. The F-ratio is used to decide whether the variances for two or more sets of data are different. (Gohagan, John Kenneth, 1980: 75) The F-ratio is the ratio of the two mean squares—sum of squares divided by the degrees of freedom. (Keller, Warrack, and Bartel, 1990: 759) A large value for the F-ratio indicates that most of the variation of the dependent variable is explained by the regression equation and

that the model is useful. A small value of F indicates that most of the variation of the dependent variable remains unexplained

Conclusion

This chapter reviewed the methodology used to test the hypotheses presented in Chapter 3. The sources of data and how the data was converted into measurable variables for this analysis was discussed. The techniques employed in this analysis, along with their strengths and weaknesses were presented. The strengths and weaknesses help to understand the limitations of the analysis and draw more accurate conclusions, which will be discussed in the following chapter.

CHAPTER 5
Research Results

Introduction

This chapter presents the results of the regression analyses for each model of government growth. The results are revealed in tables and discussion that are presented in seven sections; one for each growth model—Wagner's Law, intergovernmental grants, fiscal illusion, party control, bureau voting, demonstration effect and electoral competition. Each section discusses the results of the relationships with total government employment and governmental function employment. Autocorrelation did not result in any of the models for total employment and for only two governmental function sectors for Wagner's Law—higher education and "other".

Wagner's Law

As shown in Table 5.1, the results of the multiple regression for Wagner's Law show a strong, statistically significant relationship. All of the coefficients, except for population, show that the relationships are in the predicted, positive directions. The r^2 for the model indicates that the coefficient of determination is 90 percent or better. The large F-ratio reveals that the variance in the dependent variable is explained by the regression equation and the relationships between predictor and dependent variables do not result from chance.

The results are in accordance with one of the model's basic principals—government's share of the economy increases as the personal income of its

citizens rises. As Table 5.1 shows, Texas personal income's relationship with state government employment is statistically significant at the $p \leq .01$ level.

TABLE 5.1
Multiple Regression Analysis of Wagner's Law with Total State Government Employment

Predictor Variables	Coefficients (t-statistic)
Population	-0.954 (-1.830)
Categorical Population	10,462.492 ***(3.947)
Manufacturing GSP	1,097.765 (0.454)
Personal income	1.147 ***(6.294)

Summary Statistics	
N	29
r^2	0.983
F	349.472***

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

The results from testing the model do not indicate the predicted relationship between industrial growth, or manufacturing GSP, and employment. Manufacturing growth indicates that the relationship is not statistically significant. Categorical population, which consists of urbanization and young and elderly Texans, indicate a significant relationship with employment. The analysis suggests that the number of government employees that provide social and cultural goods to young and elderly Texans are related to employment. The results show strong linear relationships between categorical population and the number of government employees at the $p \leq .001$ level. The results of testing the

model on governmental function employment also show that Texas population is related to employment.

Regression results which apply the Wagner's Law model to governmental function employment are presented in tables C.1 through C.5 in Appendix C. Autocorrelation resulted when testing the relationship for higher education and "other" employment. The r^2 for the model indicates that the coefficient of determination is 84 percent or better for governmental functions. In addition, the F-ratio shows that the relationships between predictor and dependent variables do not result from chance.

Intergovernmental Grants

The intergovernmental grants model does not have multiple predictor variables, therefore only a simple regression analysis was conducted. Results from the analysis do not support the theory that federal grants awarded to Texas result in an increase in the number of state government workers. As Table 5.2 depicts, the relationship between intergovernmental grants and state government employment is not statistically significant. The r^2 for this model show that only 10.4 percent of the variance can be explained. In addition, the F-ratio is small signifying that the variance in the dependent variable is unexplained by the regression equation .

The only predicted, positive relationship that resulted from testing the model on the governmental functions is for highways. It was significant at the $p \leq .001$ level. Results from the analysis of the intergovernmental grants model on the governmental functions are presented in tables C.6 through C.10 in Appendix C. Higher education and "other" employment show negative, but statistically significant relationships. Relationships with the remaining two sectors are not

significant. It is assumed that intergovernmental grants are negatively related to state government employment for all functions except highways for two reasons.

TABLE 5.2
Simple Regression Analysis of Intergovernmental Grants with Total State Government Employment

Predictor Variables	Coefficients (t-statistic)
Intergovernmental grants	-4,759.363 (-1.768)

Summary Statistics	
N	29
r^2	0.104
F	3.126

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

First, in most cases, the federal government provides federal funds to state governments for specific programs, but does not require states to employ a certain number of workers. Second, the combination of federal funds playing an important role in the financing of the state's highway system and the fact that highway employment has been declining over the past 30 years (for the reasons discussed in Chapter 2), resulted in a positive, statistically significant relationship.

Fiscal Illusion

The results for testing the fiscal illusion model reveal that the predictor variables of this model are determinants of government employment. The results indicate that the state's revenue collection system may possibly hide the true

costs of providing public goods and services. If this is true, citizens in turn will demand more than if they could accurately estimate its value.

The r^2 indicates that the predictor variables account for 40 percent of the observed relationship (see Table 5.3). The coefficients indicate that the relationships of the two predictor variables are in different directions. Corporate taxes are in the predicted, positive direction, while state debt is in the negative direction. Both relationships, however, are statistically significant at the $p \leq .01$ level.

For governmental function employment, the results indicate that the corporate tax is in the positive direction and statistically significant for corrections, HHS, higher education and "other" sectors at the $p \leq .05$ level or better. Corporate tax is in the negative direction, but statistically significant at the $p \leq .01$ level, for highways employment. The results of the multiple regression for the model on corporate tax and state debt are depicted in Tables C. 11 through C.15 in Appendix C.

TABLE 5.3
Multiple Regression Analysis of Fiscal Illusion with Total State Government Employment

Predictor Variables	Coefficients (t-statistic)
Corporate taxes	16,784.820 **(2.786)
State debt	-6,828.052 **(-3.212)

Summary Statistics	
N	29
r^2	0.400
F	8.659***

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

The results of testing the model with state debt indicate that employment in the governmental functions is related to this predictor variable, but in the negative direction. State debt is in the negative direction for all functions except highways. The results for this variable are statistically significant for all functions except corrections at the $p \leq .001$ level. The test with corrections employment results in significance at the $p \leq .01$ level.

Party Control

Multiple regression results for the party control model do not support the theory that the electorate determines government growth through partisan control of the government. The main principal of this theory is that the democratic control of government leads to a more rapid increase in the number of state government employees. An underlying assumption is that the democratic party is more inclined to support expansive, liberal policies.

As presented in Table 5.4, the negative sign of the beta coefficients for all of the predictor variables indicate that there is an opposite effect in the relationship. Democratic control of the legislature is in the negative direction and statistically significant at the $p \leq .001$ level. The results show that democratic control of the governor's office is in the negative direction, but is not statistically significant.

The model, however, is statistically significant. The r^2 reveals that the predictor variables account for 94 percent of the explained relationship with employment. The F-ratio is large and indicates that the variance in the dependent variable is explained by the regression equation and the relationships between predictor and dependent variables do not result from chance.

The results for the multiple regression of the model with governmental function employment indicate the same conclusions. Democratic control of the legislature is in the opposite direction and statistically significant at the $p \leq .001$ level or better for all sectors except highways. Democratic control of the governor's office is not statistically significant. The results for tests with governmental function employment are presented in Tables C.16 through C.20 in Appendix C.

TABLE 5.4
Multiple Regression Analysis of Party Control with Total State Government Employment

Predictor Variables	Coefficients (t-statistic)
Democratic legislature	-3,874.176 ***(-18.308)
Democratic governor	-420.841 (-0.079)

Summary Statistics	
N	29
r^2	0.940
F	196.599***

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

Bureau Voting

The bureau voting model does not have multiple predictor variables, therefore only a simple regression analysis was conducted. This model is similar to the party control model in the respect that the democratic party is assumed to support expansive, liberal policies. However, this model assumes that public employees—including federal, state and local government employees—support

liberal policies. Therefore, their voting preferences should relate to the number of government employees.

The results presented in Table 5.5 indicate moderate support for this model. The significance of the beta coefficient indicates that the relationship between voting employees of all levels of government and state government employment is in the positive direction ($p \leq .001$). The r^2 indicates that the coefficient of determination represents only 51.8 percent of the explained variation. The other 48.2 percent of the relationship is unexplained. The F-ratio shows that the relationship did not likely result from chance.

TABLE 5.5
Simple Regression Analysis of Bureau Voting with Total State Government Employment

Predictor Variables	Coefficients (t-statistic)
Voting federal, state & local government employees	84,982.380 ***(5.383)

Summary Statistics	
N	29
r^2	0.518
F	28.978***

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

Results from the regression for governmental employment show similar conclusions. The beta coefficients are in the predicted, positive direction and significant at the $P \leq .001$ level for all sectors except highways. The R^2 shows that the coefficients of determination are explained by about half of the model's variation. In addition, the F-ratio indicates that the relationships do not result from chance. Results are presented in tables C.21 through C.25 in Appendix C.

Electoral Competition

Results from the multiple regression analysis for the electoral competition model indicate that electoral candidates do compete for votes. This model assumes that electoral candidates have an incentive to pursue policies that benefit the poor because they are one of the largest pools of potential voters. A further assumption is that policies that benefit the poor are represented in expansive government platforms, often supported by the democratic party.

The results of the regression as presented in Table 5.6, show that interparty competition is the only predictor variable that has a positive, statistically significant relationship with government employment. It is significant at the $p \leq .001$ level. The r^2 for the model shows that the coefficients of determination indicate that the proportion of the variance is 94.5 percent. The F-ratio indicates that the variance in the dependent variable is explained by the regression equation and that the relationships are not a result of chance.

TABLE 5.6
Multiple Regression Analysis of Electoral Competition with Total State Government Employment

Predictor Variables	Coefficients (t-statistic)
Interparty competition	3,815.293 ***(20.498)
Governor election	926.906 (0.176)
Off year election	-2,246.420 (-0.403)

Summary Statistics	
N	29
r^2	0.945
F	142.700***

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

As shown in Tables C.27 through C.30, the regression results of the relationship between the model and governmental function employment are similar to total employment. The only statistically significant relationship is interparty competition. This predictor variable is in the positive direction for all sectors of employment except for highways.

Demonstration Effect

The results for the multiple regression analysis of the demonstration effect model indicate that the model explains total employment. This means that the more information that is available to citizens concerning inequities in the provision of goods and services, citizens will more likely voice their concerns regarding unequal distribution of resources. Therefore, citizens will demand government intervention.

As depicted in Table 5.7, the beta coefficient for U.S. television sets is both positive and statistically significant at the $p \leq .01$ level. The beta coefficient for U.S. urban riots and strikes is negative, but statistically significant at the $p \leq .001$ level.

The model's r^2 indicates that the coefficients of determination explain 89 percent of the variation. The F-ratio shows that the relationships do not occur from chance.

Regression results for the model with governmental function employment reveal similar outcomes. As presented in Tables C.31 through C.35 in Appendix C, U.S. households with television sets is positive and statistically significant at the $p \leq .001$ level for HHS, higher education and "other" employment. U.S. urban strikes and riots also are statistically significant for all sectors, however, the relationship is negative for all sectors except highways.

TABLE 5.7
Multiple Regression Analysis of Demonstration Effect with Total State Government Employment

Predictor Variables	Coefficients (t-statistic)
U.S. television sets	13,173.396 **(3.539)
U.S. urban riots and strikes	-204.619 ***(-5.615)

Summary Statistics	
N	29
r^2	0.886
F	100.775***

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

Conclusion

Wagner's Law, party control and electoral competition models all show strong, statistically significant relationships with total state government employment. Fiscal illusion, bureau voting and demonstration effect models also show significant relationships with total employment. Most of the relationships of these models with total employment are in the predicted, positive direction. The intergovernmental grants model is not statistically significant.

The results of the analysis provide some valuable information for the further analysis of government employment growth. The next chapter discusses the major findings of the research, their value and recommendations for further research.

CHAPTER 6
Conclusions

Introduction

This chapter summarizes the steps of the research project and presents the major findings of the research results. The research summary presents the research question and explains the steps that were taken, why each step was taken and how each step was accomplished. In the next section, recommendations for future research are discussed.

Research Summary

The purpose of the research was three-fold. First, the research examined government growth models. Second, the correlation between the predictor variables of each model and total Texas state government employment, as well as employment in the five primary governmental functions, was tested. Third, the government growth models were tested against both total government employment and employment in the five governmental functions.

The research setting described state government employment in Texas. Employment levels for the five primary governmental functions were presented. In addition, federal and state programs and mandates were discussed as they relate to employment in the five primary governmental functions.

The review of the literature presented background information about government growth and government growth models that have been constructed and tested in previous analyses. Data sources and variable measurements for the models were revealed. Commonly, and not-so-commonly, accepted

relationships were revealed. Hypotheses to be tested in this analysis were presented.

The research methodology presented the sources of data and their limitations. Variable measurements and the operationalization of those variables were presented and discussed. Multiple and simple regression analyses were indicated as the statistical methods used to test for explained relationships. The beta coefficient, R^2, t-statistic and F-ratio were revealed as the statistical indicators of testing the relationships of the multiple and simple regressions. The strengths and weaknesses of these statistical methods and indicators were presented.

Major Findings

This study compared relationships of time-series employment data with economic, political and other predictor variables that make up the seven government growth models. Each model and predictor variables that make-up each model, the hypothesized relationships with Texas state government employment, the observed outcomes and the r^2 are depicted in Table 6.1.

The analysis showed that personal income and population over the age of 65 are related to and determine the level of state government employment. Texas population, manufacturing share of the state's economy and the state's young, dependent population are not related to employment growth.

The research indicated that public employment's share of the voting age population of the state is also related to state government employment. Public employees are assumed to favor expansive, liberal policies and hence, influence the outcome of elections and policies.

TABLE 6.1
Summary of Observed Outcomes for All Government Growth Models

Model	Variables	Hypothesis	Observed	r^2
Wagner's Law	Population	+	(-)	0.983
	Categorical population	+	+	
	Personal income	+	+	
	Industrialization	+	(+)	
Intergovernmental Grants	Intergovernmental Grants to Texas	+	(-)	0.104
Fiscal Illusion	Corporate taxes	+	+	0.400
	State debt	+	-	
Party Control	Democratic legislature	+	-	0.940
	Democratic governor	+	(-)	
Bureau Voting	Voting public sector employees	+	+	0.518
Electoral Competition	Interparty competition	+	+	0.945
	Gubernatorial election	+	(+)	
	Off-year election	+	(-)	
Demonstration Effect	Communications	+	+	0.886
	Urban riots	+	-	

+: positive and statistically significant
-: negative and statistically significant
(+): positive and not statistically significant
(-): negative and not statistically significant

Competition between candidates during election time also showed to be related to state government employment. Therefore, candidates have an incentive to pursue policies that benefit the poor because they are one of the largest pools of potential voters.

The analysis showed that citizens' access to television is positively related to state government employment. Through television, citizens receive information regarding inequities in the provision of goods and services. The more information that is available to citizens concerning these inequities, the more likely citizens will voice their concerns regarding an unequal distribution of resources.

The research indicated that the extent to which the state's revenue collection system hides the true costs of providing public goods and services and hence, causes citizens to demand more services, is related to state government employment. Franchise tax collections are a positive determinant of employment, but the state's total outstanding debt is a negatively related.

The analysis showed that the amount of federal funds received and spent by the state does not correlate with state government employment. Except for highways employment, state government employment consistently increases from year to year. Intergovernmental grants as a percent of total state expenditures, however, have remained relatively constant.

The research showed that affiliation with and support from the electorate for the democratic party—which is assumed to favor expansive government policies—is negatively related with state government employment. Democratic control of the governor's office indicated no statistical relationship with employment.

There are two explanations for this phenomenon. First, Democratic control of the legislature and governor's office in Texas may result in very different policies than it would in other states. Texas has historically acted as a conservative state and still remains relatively so today. Texas also has traditionally maintained a democratic presence in the legislature. Therefore, democratic policies in Texas do not necessarily compare to democratic policies in other states.

Second, government growth may not be related to political partisanship at all. As described in Chapter 3, the best determinant of government growth is "institutional inertia"—that government should grow, incrementally and monotonically. (Blais 1993, p. 41 and Weiher and Lorence 1991, p. 375) Therefore, the most important determinants of government growth may be

population, personal income, urbanization and industrialization. In the analysis, these predictors showed the strongest positive relationships with employment.

Recommendations for Further Research

There is unlimited potential for future research on the topic of government employment growth, the models of growth discussed in this research and government growth in general. For Texas specific government employment growth, the models discussed in this research should be modified to correct for the assumption that democratic policies are liberal, expansive government policies.

Many state and local governments often complain about federal mandates. In addition, court mandates have required states to change their policies. A model that quantifies mandates and court orders should be constructed and tested against government employment. It would be particularly interesting to see how these predictors relate to government growth measured by expenditures.

Conclusion

In conclusion, the research presented the public administration subject of government employment, explored different quantitative models for testing relationships of predictor variables and tested the models in Texas. This research found that the relationships suggested in the literature were similar to those found in Texas. The strongest relationships were personal income, population and urbanization.

The main weaknesses of the study are the inclusion of the assumption that the democratic party in Texas favors liberal, expansive government policies in some of the models and the lack of measurement for federal mandates and court orders. These are the reasons the recommendations for future research suggest constructing new models that measure the effect of federal mandates and court orders and modifying current models to adjust the assumption that democratic policies are liberal. In Texas politics, democrat does not necessarily mean liberal.

BIBLIOGRAPHY

Books

Babbie, Earl, *The Practice of Social Research.* Belmont, Cal, Wadsworth Publishing, Co., 1992.

Bennett, Linda L.M. and Stephen Earl Bennett, *Living with Leviathan: Americans Coming to Terms with Big Government.* Lawrence, University Press of Kansas, 1990.

Berry, William D., *Understanding United States Government Growth: An Empirical Analysis of the Postwar Era.* New York, Praeger, 1987.

DiLeonardi, Joan W. and Patrick Almond Curtis, *What to Do When the Numbers Are In: A User's Guide to Statistical Data Analysis in the Human Services.* Chicago, Nelson-Hall Inc., Publishers, 1992.

Eisinger, Peter K., *The Rise of the Entrepreneurial State: State and Local Economic Development Policies in the United States.* Madison, University of Wisconsin Press, 1988.

Gohagan, John Kenneth, Quantitative Analysis for Public Policy. New York, McGraw-Hill Book Company, 1980.

Herzik, Eric B. and Brent W. Brown, *Gubernatorial Leadership and State Policy.* Westport, Connecticut, Greenwood, 1991.

Keller, Gerald; Warrack, Brian; and Bartel, Henry, *Statistics for Management and Economics: A Systematic Approach.* Belmont, California, Wadsworth Publishing Co., 1990.

Schwallie, Daniel P., *The Impact of Intergovernmental Grants on the Aggregate Public Sector.* Westport, Connecticut, Quorum Books, 1989.

Tufte, Edward R., Political Control of the Economy. Princeton, N.J., University Press, 1978.

Journal Articles

Abizadeh, Sohrab, "An Empirical Reexamination of Wagner's Law," *Economics Letters*. 1988, Vol. 20, No. 1.

Abizadeh, Sohrab, "Economic Development and Income Elasticity of Demand for Government," *Social Indicators Research*. 1988, Vol. 15, No. 43.

Beck, M., "Towards a Theory of Public Sector Growth," *Public Finance/Publiques Finances*. 1982, Vol. 34, No. 3.

Bergrestrom, T.C., "Private Demand for Public Goods," *American Economic Review*. 1973, Vol. 63, No. 2.

Blais, Andre; Donald Blake; and Stephane Dion, "Do Parties Make a Difference? Parties and the Size of Government in Liberal Democracies," *American Journal of Political Science*. February 1993, Vol. 37, No. 1.

Borcherding, Thomas, "The Causes of Government Expenditure Growth," *Journal of Public Economics*. 1985, Vol. 28, No. 3.

Borcherding, Thomas, "The Demand for Services of Non-Federal Governments," *American Economic Review*. 1972, Vol. 62, No. 3.

Borcherding, Thomas and Robert T. Deacon, "The Demand for the Services of Non-federal Governments," *The American Economic Review*. December 1972, Vol. LXII, No. 5.

Bush, Winston C. and Arthur T. Denzau, "The Voting Behavior of Bureaucrats and Public Sector Growth." In Thomas Borcherding, ed., *Budgets and Bureaucrats: The sources of Government Growth*. Durham, N.C., Duke University Press, 1977.

Chrystal, K.A., "Endogenous Government Behavior: Wagner's Law," *Current Issues in Fiscal Policy*. 1985, Vol. 28, No. 3.

Courant, Paul N.; Edward M. Gramlich; and Daniel L. Rubinfeld, "Public Employee Market Power and the Level of Government Spending," *The American Economic Review*. December 1979, Vol. 69, No. 5.

Ehrenberg, Ronald, "The Demand for State and Local Government Employees," *American Economic Review.* June 1973, Vol. 63, No. 3.

Forbes, Kevin F. and Ernest M. Zampelli, "Is Leviathan a Mythical Beast?" *The American Economic Review.* June 1989. Vol. 79, No. 3.

Garand, James C., "Explaining Government Growth in the U.S. State," *American Political Science Review.* September 1988, Vol. 82, No. 3.

Gemmell, Norman, "A Model of Unbalanced Growth," *Oxford Economic Papers.* 1987, Vol. 39, No. 2.

Gemmell, Norman, "Wagner's Law, Relative Prices and the Size of the Public Sector," *The Manchester School.* December 1990, Vol. LVIII, No. 4.

Grossman, Philip J., "Fiscal Decentralization and Government Size: An Extension," *Public Choice.* 1989, Vol. 62.

Jennings, E.T., "Competition, Constituencies, and Welfare Policies in American States," *American Political Science Review.* December 1979, Vol. 73.

Joulfaian, David, and Michael L. Marlow, "Government Size and Decentralization: Evidence from Disaggregated Data," *Applied Economics.* 1991, Vol. 23.

Joulfaian, David and Michael L. Marlow, "Public Sector Employment, Competition, and Government Size," *Public Finance / Finances Publiques.* 1991, No. 2.

Keech, W.R., "Elections and Macroeconomic Policy Optimization," *American Journal of Political Science.* May 1980, Vol. 24.

Lee, Dwight R. and Richard K. Vedder, "Friedman Tax Cuts Vs. Buchanan Deficit Reduction as the Best Way of Constraining Government," *Economic Inquiry.* October 1992, Vol. XXX.

Lewis-Beck, Michael S. and Tom W. Rice, "Government Growth in the United States," *The Journal of Politics.* 1985, Vol. 47.

Lindbeck, Assar, "Redistribution Policy and the Expansion of the Public Sector," *Journal of Public Economics.* 1985, Vol. 28.

Lowery, David and L. Sigelman, "Party identification and Public Spending Priorities in the American Electorate," *Political Studies.* June 1982, Vol. 30.

Lowery, David and William D. Berry, "The Growth of Government in the United States: An Empirical Assessment of Competing Explanations," *American Journal of Political Science.* November 1983, Vol. 27, No. 4.

Lowery, David and Lee Sigelman, "Party Identification and Public Spending Priorities in the American Electorate," *Political Studies.* June 1982, Vol. XXX, No. 2.

Marlow, Michael L., "Fiscal Decentralization and Government Size," *Public Choice.* 1988, Vol. 56.

Meyer, Fred and Ralph Baker, "An Overview of State Policy Problems," *Policy Studies Review.* Spring 1992, Vol. 11, No. 1.

Miller, Gary J. and Terry M. Moe, "Bureaucrats, Legislators, and the Size of Government," *American Political Science Review.* 1983, Vol. 77.

Oates, Wallace E., Searching for Leviathan: A Reply and Some Further Reflections," *The American Economic Review.* June 1989, Vol. 79, No. 3.

Pagano, Michael A. and Ann O'M. Bowman, "The State of American Federalism," *Publius.* Summer 1993, Vol. 23.

Ram, R., "Comparing Evidence on Wagner's Hypothesis from Conventional and 'Real' Data," *Economics Letters.* 1986, Vol. 20, No. 3.

Ram, R., "Wagner's Hypothesis in Time-Series and Cross Sectional Perspectives: Evidence from 'Real' Data for 115 Countries," *Review of Economics and Statistics.* 1987, Vol. 69, No. 2.

Schneider, Mark, "Undermining the Growth Machine: The Missing Link between Local Economic Development and Fiscal Payoffs," *The Journal of Politics.* February 1992, Vol. 54, No. 1.

Schneider, Mark, "The Demand for the Suburban Public Work Force: Residents, Workers, and Politicians," *The Journal of Politics*. 1988, Vol. 50.

Tarschys, Daniel, "The Growth of Public Expenditures: Nine Models of Explanation," *Scandinavian Political Studies*. 1975, Vol. 10, No. 1.

Wagner, Richard E., "Revenue Structure, Fiscal Illusion, and Budgetary Choice," Public Choice. Spring 1976, Vol. XXV.

Weiher, Gregory R. and Jon Lorence, "Growth in State Government Employment: A Time Series Analysis," *The Western Political Quarterly*. June 1991, Vol. 44, No. 2.

Yousefi, Mahmood and Sohrab Abizadeh, "Growth of State Government Expenditures: Empirical Evidence from the United States," *Public Finance / Finances Publiques*. 1992, Vol. 47, No. 2.

Zax, Jeffrey S., "Is There a Leviathan in Your Neighborhood?" *The American Economic Review*. June 1989, Vol. 79, No. 3.

Government Publications and Documents

Texas State Comptroller's Office, *Medicaid: Where Does It Hurt?* December 1993.

Texas State Auditor's Office, *Quarterly Report of Full-Time Equivalent State Employees*. Various issues.

Texas State Auditor's Office, *Biennial Report of the Classification Officer. Various issues.*

U.S. Department of Commerce, Bureau of the Census, *Public Employment*. Various issues.

U.S. Department of Commerce, Bureau of the Census, *U.S. Statistical Abstract*. Various issues.

APPENDIX A:
EXAMINATION OF PRIOR RESEARCH

APPENDIX A: ANALYSIS AND RESULTS OF PREVIOUS GOVERNMENT GROWTH STUDIES

TABLE A.1

Wagner's Law

Author / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Garand / '88	ordinary least squares	t	ratio of state government expenditures to total state economic output	total personal income and state population	-
Gemmell / '90	ordinary least squares	t & c	government expenditures	income per capita, population, price of government output, price of non-government output and government real output	t - c -
Lewis-Beck / '85	ordinary least squares	t	government expenditures as a percentage of GNP	percentage of the population 24 years and younger, percentage of the population 65 years and older, perceived national economic problems index, average household savings as a percentage of real disposable personal income and per capita real value of exports and imports	+
Lowery and Berry / '83	ordinary least squares & pseudo-generalized least squares	t	government expenditures to total U.S. economic output ratio	total inflation adjusted personal income, population, and ratio of GNP-manufacturing to GNP multiplied by ratio of implicit price deflator (IPD) for GDP to IPD for imports	+
Ram / '86	standard linear regression	c	government expenditures as a percent of total output and government expenditure	real gross domestic product (GDP) per capita and aggregate GDP per capita	-
Ram / '87	t: generalized least squares & c: ordinary least squares	t & c	government expenditures as a percent of total output and government expenditure	real gross domestic product (GDP) per capita and aggregate GDP per capita	t + c -

TABLE A.1
Wagner's Law (cont.)

Author / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Schneider / '88	least squares with dummy variables	c	full-time equivalent government employment per 1,000 residents and ratio of average monthly government pay to average monthly pay for worker in the manufacturing sector	i & p	i + p...+
Weiher and Lorence / '90	ordinary least squares	t	number of non-school employees per 10,000 residents	i & p	i - p +
Yousefi and Abizadeh / '92	ordinary least squares	t	government expenditures	dr, sgp, ur & pe	dr - sgp + ur + p +

c: cross sectional
dr: dependency ratio
i: median income
p: population density
pe: private expenditures
sgp: full employment state gross product
t: time series
ur urban ratio

TABLE A.2
Intergovernmental Grants

Author(s) / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Garand / '88	ordinary least squares	t	ratio of st. government expenditures to total st. economic output	percentage of federal grants to total state government expenditures	+
Grossman / '89	ordinary least squares	t	government expenditures as a share of GNP	federal grants as a percent of state & local revenue & share of st/lcl expenditures in total government expenditures	+
Schneider / '88	least squares with dummy variables	c	full-time equivalent government employment per 1,000 residents & ratio of average monthly government pay to average monthly pay for manufacturing worker	ft & m	ft + m -
Joulfaian and Marlow / '91	ordinary least squares	t	government employment and government expenditures	federal, state & local employment; federal state & local expenditures; population; per capita real personal income; federal grants; urban population; state and local government employment / federal, state and local government employment and no. of state & local government bodies	+
Weiher and Lorence / '90	ordinary least squares	t	number of non-school employees per 10,000 residents	proportion of state budget comprised by federal grants	+

c: cross sectional
ft: federal & state transfers per capita
m: state mandates
t: time series

TABLE A.3
Fiscal Illusion

Author(s) / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Garand / '88	ordinary least squares	t	ratio of state government expenditures to total state economic output	percentage of state revenues from the personal income tax, percentage of state revenues from corporate income taxes and the complexity of the state tax system	-
Lowery and Berry / '83	ordinary least squares & pseudo-generalized least squares	t	ratio of government expenditures to total U.S. economic output	federal government withholdings as a percentage of total federal, state and local receipts (excluding grants-in-aid); debt measured as federal, state and local government expenditures minus federal, state and local receipts as a percentage of federal, state and local government expenditures; and tax complexity measured by using the Herfindahl Index of Revenue Concentration	-
Schneider / '88	least squares with dummy variables	c	full-time equivalent government employment per 1,000 residents and ratio of average monthly government pay to average monthly pay for worker in the manufacturing sector	r, d & tc	r + d + tc +

c: cross sectional
d: debt per capita
r: percent of households renting
t: time series
tc: local tax cost (median home value multiplied by the local effective tax rate)

TABLE A.4
Party Control

Author(s) / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Blais, Blake & Dion / '93	Durbin-Watson tests, autocorrelation parameter (rho)	t & c	public sector expenditures as a percentage of GDP	parties of the left, parties of the center and parties of the right	c - t -
Garand / '88	ordinary least squares	t	ratio of state government expenditures to total state economic output	ratio of state government expenditures to total state economic output, republican control of the governors office and republican control of the legislature	-
Lewis-Beck / '85	ordinary least squares	t	government expenditures as percent of GNP	index of changing democratic party strength	+
Lowery and Berry / '83	ordinary least squares & pseudo-generalized least squares	t	ratio of government expenditures to total U.S. economic output	partisan control of presidency and partisan control of congress	-
Weiher and Lorence / '90	ordinary least squares	t	number of non-school employees per 10,000 residents	(percent democrat in the house + percent democrat in the senate) / 2 and partisanship of governor	-
Lowery and Sigelman / '82	multiple classification analysis	data analysis from survey	government expenditures in following areas: space, environment, health, cities, crime, drugs, education, blacks, defense, foreign aid and welfare	republican party identification, democratic party identification and independent party identification	+ (except for crime, drugs and foreign aid)
Weiher and Lorence / '90	ordinary least squares	t	number of non-school employees per 10,000 residents	(percent democrat in the house + percent democrat in the senate) / 2 and partisanship of governor	-

TABLE A.4
Party Control (cont.)

Author(s) / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Lowery and Sigelman / '82	multiple classification analysis	data analysis from survey	government expenditures in following areas: space, environment, health, cities, crime, drugs, education, blacks, defense, foreign aid and welfare	republican party identification, democratic party identification and independent party identification	+ (except for crime, drugs and foreign aid)
Lowery and Sigelman / '82	multiple classification analysis	data analysis from survey	government expenditures in following areas: space, environment, health, cities, crime, drugs, education, blacks, defense, foreign aid and welfare	republican party identification, democratic party identification and independent party identification	+ (except for crime, drugs and foreign aid)

c: cross sectional
t: time series

TABLE A.5
Bureau Voting

Author(s) / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Courant, Gramlich, & Rubinfeld / '79		algebraic equations	public sector budget	the following variables when private employees are the dominate voting bloc and when public employees are the dominant voting bloc private consumption, public output, private employees, public employees, cost of hiring private employee and cost of hiring public employee	-
Garand / '88	ordinary least squares	t	ratio of state government expenditures to total state economic output	number of government employees as a proportion of state population	+
Joulfaian and Marlow / '91	ordinary least squares	t	government employment and government expenditures	federal, state & local employment; federal state & local expenditures; population; per capita real personal income; federal grants; urban population; state and local government employment / federal, state and local government employment and number of state and local government bodies	+
Lowery and Berry / '83	ordinary least squares & pseudo-generalized least squares	t	ratio of government expenditures to total U.S. economic output	number of full- and part-time government employees as a percentage of working-age population	-

TABLE A.5
Bureau Voting (cont.)

Author(s) / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Schneider / '88	least squares with dummy variables	c	full-time equivalent government employment per 1,000 residents and ratio of average monthly government pay to average monthly pay for worker in the manufacturing sector	ge & u	ge - u -
Weiher and Lorence / '90	ordinary least squares	t	number of non-school employees per 10,000 residents	unionization (presence of collective bargaining)	+

c: cross sectional
ge: percent of population working in government
t: time series
u: percent of work force that is unionized

TABLE A.6
Electoral Competition

Author(s) / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Lowery and Berry / '83	ordinary least squares & pseudo-generalized least squares	t	ratio of government expenditures to total U.S. economic output	party control of the congress & presidency, percentage of House & Senate seats held by democrats, years of presidential & off-year elections & interparty competition	-
Schneider / '88	least squares with dummy variables	c	FTE government employment per 1,000 residents & ratio of average monthly government pay to average monthly pay for manufacturing worker	m & cm	m - cm +

TABLE A.7
Demonstration Effect

Author(s) / Yr.	Statistical Method	Data Type	Dependent Variable	Independent Variables	Results
Lowery and Berry / '83	ordinary least squares & pseudo-generalized least squares	t	ratio of government expenditures to US economic output	percentage of households with television sets and number of urban riots	-

c: cross sectional
cm: city managers
m: number of changes of mayors

APPENDIX B:
DATA

APPENDIX B: VARIABLE MEASUREMENTS

TABLE B.1
Total and Governmental Function
Full-time Equivalent (FTE) Employment

Year	Total	Higher Education	Highways	Health & Human Services	Corrections	Other
1965	78,411	23,746	17,517	19,316	2,649	15,183
1966	84,093	27,272	17,729	20,589	2,784	15,719
1967	89,254	29,799	17,585	21,735	3,086	17,049
1968	96,755	33,578	18,008	23,228	3,117	18,824
1969	101,124	35,715	18,451	23,465	3,278	20,215
1970	111,677	41,332	18,976	25,781	3,395	22,193
1971	118,121	44,458	18,364	28,324	3,896	23,079
1972	122,902	45,450	18,383	30,919	3,489	24,661
1973	129,299	45,372	17,759	34,412	4,492	27,264
1974	135,707	49,570	17,426	38,837	4,641	25,233
1975	147,855	55,476	16,450	43,876	4,607	27,446
1976	159,243	62,021	14,212	49,487	5,123	28,400
1977	162,987	63,335	14,018	52,029	4,954	28,651
1978	165,587	63,693	14,311	52,894	5,234	29,455
1979	167,635	63,980	14,754	52,544	5,171	31,186
1980	168,995	63,595	14,392	53,193	5,745	32,070
1981	169,267	65,986	13,925	52,018	6,759	30,579
1982	175,926	67,299	14,158	54,013	8,420	32,036
1983	180,681	71,001	14,175	52,772	9,468	33,265
1984	185,486	71,436	14,233	53,468	12,478	33,871
1985	189,060	72,449	15,612	53,427	14,106	33,466
1986	192,633	73,462	15,152	53,386	15,733	34,900
1987	198,769	74,809	15,067	54,554	17,866	36,473
1988	209,570	77,767	15,553	59,227	19,224	37,799
1989	212,123	76,458	15,285	60,817	21,016	38,547
1990	222,867	80,655	15,203	63,656	23,032	40,321
1991	228,001	79,295	14,555	67,962	24,190	41,999
1992	243,432	85,884	14,456	71,494	27,078	44,520
1993	250,008	87,298	14,032	73,920	29,478	45,280

T A B L E B.2
Wagner's Law Predictor Variables

Year	Texas Population	Percent of Texas Population Under Age 18	Percent of Texas Pop. Over Age 65	Percent of Texas Pop. Living in MSAs	Texas Manufacturing GSP as a Percent of Total GSP	Adjusted Texas Personal Income (millions)
1965	10,561,000	36.55 %	8.44 %	77.73 %	19.5 %	$116,326.12
1966	10,727,000	36.33	8.55	78.16	19.6	123,894.15
1967	10,895,000	36.11	8.66	78.60	19.8	132,358.32
1968	11,045,000	35.89	8.77	79.18	19.9	139,499.19
1969	11,237,000	35.58	8.88	79.40	19.6	146,970.48
1970	11,510,000	34.99	8.95	79.48	19.4	152,484.29
1971	11,759,000	34.41	9.03	79.55	18.5	163,708.96
1972	12,019,000	33.85	9.11	79.90	18.4	175,932.12
1973	12,268,000	33.29	9.18	80.20	17.9	179,141.61
1974	12,568,000	32.74	9.26	80.34	18.0	185,672.14
1975	12,903,000	32.20	9.34	80.63	18.6	199,642.77
1976	13,192,000	31.68	9.42	80.79	19.6	210,736.60
1977	13,498,000	31.15	9.50	80.98	19.1	226,876.65
1978	13,887,000	30.64	9.58	81.08	18.5	236,839.83
1979	14,339,000	30.18	9.62	81.11	17.5	240,476.41
1980	14,746,000	29.87	9.53	81.36	17.4	256,303.76
1981	15,332,000	29.59	9.35	81.54	16.4	263,470.57
1982	15,753,000	29.26	9.31	81.68	15.8	269,059.71
1983	16,009,000	29.19	9.33	81.87	16.2	282,470.66
1984	16,275,000	29.17	9.38	82.17	15.6	294,003.40
1985	16,563,000	29.25	9.44	82.47	16.6	294,386.10
1986	16,624,000	29.22	9.65	82.70	16.6	288,732.20
1987	16,669,000	29.10	9.84	82.83	17.3	292,304.08
1988	16,807,000	28.60	10.00	83.12	16.9	297,955.57
1989	17,055,000	28.58	10.08	83.43	16.6	304,061.65
1990	17,348,000	28.54	10.17	83.48	16.4	308,292.06
1991	17,683,000	28.51	10.21	83.44	16.1	316,778.90
1992	18,031,000	28.38	10.22	82.72	15.9	337,103.50
1993	18,307,600	28.37	10.31	83.00	15.6	340,142.27

TABLE B.3
Intergovernmental Grants Predictor Variable

Year	Intergovernmental Grants as a Percent of Total State Expenditures
1965	27.95 %
1966	28.33
1967	30.16
1968	28.21
1969	28.60
1970	29.30
1971	30.35
1972	32.17
1973	28.99
1974	28.33
1975	29.01
1976	28.43
1977	26.11
1978	26.51
1979	25.59
1980	25.11
1981	20.16
1982	21.04
1983	21.71
1984	21.00
1985	23.23
1986	22.76
1987	23.23
1988	24.37
1989	26.15
1990	27.20
1991	28.74
1992	29.51
1993	31.05

TABLE B.4
Fiscal Illusion Predictor Variables

Year	Texas Franchise Tax Collections as a Percent of Total Tax Collections	Texas' Total Outstanding Debt as a Percent of Total Expenditures
1965	4.91 %	21.62 %
1966	4.91	21.16
1967	4.91	19.19
1968	5.11	19.72
1969	6.19	20.95
1970	6.58	21.62
1971	5.49	19.73
1972	5.18	16.29
1973	5.11	17.26
1974	4.94	16.19
1975	5.46	13.76
1976	5.35	12.79
1977	5.26	11.29
1978	5.45	10.29
1979	5.37	9.18
1980	5.39	9.55
1981	5.56	11.84
1982	6.53	13.68
1983	6.52	15.90
1984	7.98	16.46
1985	8.81	16.82
1986	8.51	15.67
1987	7.54	16.39
1988	5.27	15.89
1989	4.31	15.82
1990	4.00	15.91
1991	6.88	16.47
1992	7.01	16.15
1993	7.31	16.17

TABLE B.5
Party Control Predictor Variables

Year	Texas Democratic Representatives as a Percent of Total House Seats	Texas Democratic Senators as a Percent of Total Senate Seats	Political Party of Governor (1 = Democrat & 0 = Republican)
1965	98.00 %	96.77 %	1
1966	98.00	96.77	1
1967	94.67	93.55	1
1968	94.67	93.55	1
1969	93.33	93.55	1
1970	93.33	93.55	1
1971	88.59	90.32	1
1972	88.59	90.32	1
1973	89.33	90.32	1
1974	89.33	90.32	1
1975	87.33	87.10	1
1976	87.33	87.10	1
1977	84.67	83.87	1
1978	84.67	83.87	0
1979	76.51	76.67	0
1980	76.51	76.67	0
1981	76.00	83.87	0
1982	76.00	83.87	1
1983	65.33	80.65	1
1984	65.33	80.65	1
1985	62.67	80.65	1
1986	62.67	80.65	0
1987	62.00	74.19	0
1988	62.00	74.19	0
1989	62.00	70.97	0
1990	62.00	70.97	1
1991	61.07	58.06	1
1992	61.07	58.06	1
1993	60.80	52.90	1

TABLE B.6
Bureau Voting Predictor Variable

Year	Texas Federal (Civilian), State & Local Government Employment as a Percentage of Texas Voting Age Population
1965	8.12 %
1966	8.33
1967	8.64
1968	8.78
1969	8.84
1970	9.08
1971	9.03
1972	9.23
1973	9.23
1974	9.23
1975	9.15
1976	9.03
1977	9.07
1978	8.88
1979	8.78
1980	8.70
1981	8.71
1982	8.67
1983	8.76
1984	8.77
1985	8.89
1986	9.09
1987	9.36
1988	9.43
1989	9.55
1990	9.63
1991	9.69
1992	9.72
1993	9.81

TABLE B.7
Electoral Competition Predictor Variables

Year	Interparty Competition	Gubernatorial Election Year (1 = Year of Gubernatorial Election)	Off-year Election Year (1 = Off-year Election Year)
1965	-96.3871	0	1
1966	-96.3871	0	1
1967	-93.1075	0	1
1968	-93.1075	1	0
1969	-92.4409	0	1
1970	-92.4409	0	1
1971	-88.4566	0	1
1972	-88.4566	1	0
1973	-88.8280	0	1
1974	-88.8280	0	1
1975	-86.2151	0	1
1976	-86.2151	1	0
1977	-83.2688	0	1
1978	-82.2688	0	1
1979	-74.5884	0	1
1980	-74.5884	1	0
1981	-77.9355	0	1
1982	-78.9355	0	1
1983	-71.9892	0	1
1984	-71.9892	1	0
1985	-70.6559	0	1
1986	-69.6559	0	1
1987	-66.0968	0	1
1988	-66.0968	1	0
1989	-64.4839	0	1
1990	-65.4839	0	1
1991	-58.5692	0	1
1992	-58.5692	1	0
1993	-56.3496	0	1

TABLE B.8
Demonstration Effect Predictor Variables

Year	Percent of U.S. Households with TV Sets	Texas' Total Daily & Sunday Newspaper Circulation	U.S. Urban Riots & Strikes
1965	93.0 %	5,983,000	321
1966	94.0	6,025,000	401
1967	94.5	6,236,000	412
1968	95.0	6,313,000	442
1969	96.0	6,394,000	401
1970	96.0	6,545,000	298
1971	96.5	6,593,000	250
1972	97.0	6,767,000	317
1973	97.0	6,736,000	424
1974	97.1	6,539,000	235
1975	97.4	6,773,000	231
1976	97.4	7,006,000	298
1977	97.6	7,112,000	219
1978	97.7	7,237,000	235
1979	97.9	7,374,000	187
1980	98.0	7,426,000	145
1981	98.0	7,727,000	96
1982	98.0	7,992,000	81
1983	98.0	7,967,000	62
1984	98.0	7,942,000	54
1985	98.0	7,960,000	69
1986	98.0	7,977,000	46
1987	98.1	8,080,000	40
1988	98.2	8,195,000	51
1989	98.2	8,186,000	44
1990	98.2	7,483,000	40
1991	98.2	7,719,600	39
1992	98.2	7,631,400	24
1993	98.2	7,364,920	21

APPENDIX C:
MULTIPLE & SIMPLE REGRESSION RESULTS FOR FUNCTIONAL GOVERNMENT EMPLOYMENT

APPENDIX C:
REGRESSION RESULTS FOR
GOVERNMENTAL FUNCTION EMPLOYMENT

APPENDIX C: REGRESSION RESULTS FOR GOVERNMENTAL FUNCTION EMPLOYMENT

WAGNER'S LAW

T A B L E C.1
Multiple Regression Analysis of Wagner's Law with Corrections Employment

Predictor Variables	Beta Coefficients	t-statistic
Population	0.410	*2.563
Categorical population	3,555.970	***4.375
Manufacturing GSP	177.917	0.240
Personal income	-0.001	-0.018

Summary Statistics	
N	29
r^2	0.946
F	106.147***

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

T A B L E C.2
Multiple Regression Analysis of Wagner's Law with Health & Human Services Employment

Predictor Variables	Beta Coefficients	t-statistic
Population	-0.589	*-2.247
Categorical Population	1,484.070	1.112
Manufacturing GSP	984.696	0.809
Personal income	0.464	***5.060

Summary Statistics	
N	29
r^2	0.962
F	13.108***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.3
Multiple Regression Analysis of Wagner's Law with Highways Employment

Predictor Variables	Beta Coefficients	t-statistic
Population	0.037	0.657
Categorical population	865.805	**3.003
Manufacturing GSP	-65.965	-0.251
Personal income	-0.025	-1.265

Summary Statistics	
N	29
r^2	0.841
F	31.629***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.4
Multiple Regression Analysis of Wagner's Law with Higher Education Employment

Autocorrelation

T A B L E C.5
Multiple Regression Analysis of Wagner's Law with "Other" Employment

Autocorrelation

INTERGOVERNMENTAL GRANTS

T A B L E C.6
Simple Regression Analysis of Intergovernmental Grants with Corrections Employment

Predictor Variables	Beta Coefficients	t-statistic
Intergovernmental grants	-1,195.796	*-2.608

Summary Statistics	
N	29
r^2	0.449
F	6.799*

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

T A B L E C.7

Simple Regression Analysis of Intergovernmental Grants with Health & Human Services Employment

Predictor Variables	Beta Coefficients	t-statistic
Intergovernmental grants	-1,772.158	-2.004

Summary Statistics	
N	29
r^2	0.130
F	4.017

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.8

Simple Regression Analysis of Intergovernmental Grants with Highways Employment

Predictor Variables	Beta Coefficients	t-statistic
Intergovernmental grants	309.307	***3.811

Summary Statistics	
N	29
r^2	0.350
F	14.527***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.9

Simple Regression Analysis of Intergovernmental Grants with Higher Education Employment

Predictor Variables	Beta Coefficients	t-statistic
Intergovernmental grants	-2,330.842	*-2.373

Summary Statistics	
N	29
r^2	0.173
F	5.630*

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.10

Simple Regression Analysis of Intergovernmental Grants with "Other" Employment

Predictor Variables	Beta Coefficients	t-statistic
Intergovernmental grants	-719.451	*-1.539

Summary Statistics	
N	29
r^2	0.989
F	320.090*

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.11
Multiple Regression Analysis of Fiscal Illusion with Corrections Employment

Predictor Variables	Beta Coefficients	t-statistic
Corporate tax	2,628.859	*2.133
State debt	-215.739	-0.496

Summary Statistics	
N	29
r^2	0.153
F	2.356*

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.12
Multiple Regression Analysis of Fiscal Illusion with Health & Human Services Employment

Predictor Variables	Beta Coefficients	t-statistic
Corporate tax	4,980.215	*2.723
State debt	-2,873.774	***-4.452

Summary Statistics	
N	29
r^2	0.502
F	13.108***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.13
Multiple Regression Analysis of Fiscal Illusion with Highways Employment

Predictor Variables	Beta Coefficients	t-statistic
Corporate tax	-471.540	**-2.982
State debt	376.756	***6.752

Summary Statistics	
N	29
r^2	0.670
F	26.406***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.14
Multiple Regression Analysis of Fiscal Illusion with Higher Education Employment

Predictor Variables	Beta Coefficients	t-statistic
Corporate tax	6,807.278	**3.264
State debt	-3,001.279	***-4.078

Summary Statistics	
N	29
r^2	0.502
F	13.085***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.15
Multiple Regression Analysis of Fiscal Illusion with "Other" Employment

Predictor Variables	Beta Coefficients	t-statistic
Corporate tax	2,840.008	*2.691
State debt	-1,114.015	**-2.991

Summary Statistics	
N	29
r^2	0.374
F	7.753

* p ≤ .05
** p ≤ .01
*** p ≤ .001

PARTY CONTROL

T A B L E C.16
Multiple Regression Analysis of Party Control with Corrections Employment

Predictor Variables	Beta Coefficients	t-statistic
Democratic legislature	-645.057	***-12.546
Democratic governor	2,484.461	1.923

Summary Statistics	
N	29
r^2	0.870
F	83451***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.17
Multiple Regression Analysis of Party Control with Health & Human Services Employment

Predictor Variables	Beta Coefficients	t-statistic
Democratic legislature	-1,221.496	***-11.383
Democratic governor	-1,721.468	-0.639

Summary Statistics	
N	29
r^2	0.864
F	79.223

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.18
Multiple Regression Analysis of Party Control with Highways Employment

Predictor Variables	Beta Coefficients	t-statistic
Democratic legislature	94.440	*** 4.277
Democratic governor	656.505	1.184

Summary Statistics	
N	29
r^2	0.524
F	13.768***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.19
Multiple Regression Analysis of Party Control with Higher Education Employment

Predictor Variables	Beta Coefficients	t-statistic
Democratic legislature	-1,434.608	***-12.977
Democratic governor	-2,007.724	-0.723

Summary Statistics	
N	29
R^2	0.892
F	102.931

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

T A B L E C.20
Multiple Regression Analysis of Party Control with "Other" Employment

Predictor Variables	Beta Coefficients	t-statistic
Democratic legislature	-667.455	***-18.750
Democratic governor	169.384	0.189

Summary Statistics	
N	29
r^2	0.942
F	203.962***-

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

T A B L E C.21
Simple Regression Analysis of Bureau Voting with Corrections Employment

Predictor Variables	Beta Coefficients	t-statistic
Voting public employees in Texas	25,397.739	***4.387

Summary Statistics	
N	29
r^2	0.416
F	19.250***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.22
Simple Regression Analysis of Bureau Voting with Health & Human Services Employment

Predictor Variables	Beta Coefficients	t-statistic
Voting public employees in Texas	25,397.062	***4.387

Summary Statistics	
N	29
r^2	0.416
F	19.249***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.23
Simple Regression Analysis of Bureau Voting with Highways Employment

Predictor Variables	Beta Coefficients	t-statistic
Voting public employees in Texas	-934.441	-1.192

Analysis of Variance	
N	29
r^2	0.050
F	1.420

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.24
Simple Regression Analysis of Bureau Voting with Higher Education Employment

Predictor Variables	Beta Coefficients	t-statistic
Voting public employees in Texas	29,792.387	***4.616

Summary Statistics	
N	29
r^2	0.441
F	21.308***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.25
Simple Regression Analysis of Bureau Voting with "Other" Employment

Predictor Variables	Beta Coefficients	t-statistic
Voting public employees in Texas	15,219.494	***5.918

Summary Statistics	
N	29
r^2	0.591
F	35.025***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

ELECTORAL COMPETITION

T A B L E C.26
Multiple Regression Analysis of Electoral Competition with Corrections Employment

Predictor Variables	Beta Coefficients	t-statistic
Interparty Competition	1,223.626	***13.096
Gubernatorial election year	382.187	0.144
Off-year election	-646.354	-0.231

Summary Statistics	
N	29
r^2	0.875
F	58.249***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.27
Multiple Regression Analysis of Electoral Competition with Health & Human Services Employment

Predictor Variables	Beta Coefficients	t-statistic
Interparty Competition	1,223.594	***13.095
Gubernatorial election year	382.668	0.145
Off-year election	-646.821	-0.231

Summary Statistics	
N	29
r^2	0.875
F	58.237***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.28
Multiple Regression Analysis of Electoral Competition with Highways Employment

Predictor Variables	Beta Coefficients	t-statistic
Interparty Competition	-100.049	***-5.143
Gubernatorial election year	-99.115	-0.180
Off-year election	-11.187	-0.019

Summary Statistics	
N	29
r^2	0.519
F	8.991***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.29

Multiple Regression Analysis of Electoral Competition with Higher Education Employment

Predictor Variables	Beta Coefficients	t-statistic
Interparty Competition	1,411.050	***14.537
Gubernatorial election year	804.054	0.292
Off-year election	-386.081	-0.133

Summary Statistics	
N	29
r^2	0.896
F	71.774***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.30

Multiple Regression Analysis of Electoral Competition with "Other" Employment

Predictor Variables	Beta Coefficients	t-statistic
Interparty Competition	653.261	***21.051
Gubernatorial election year	356.830	0.406
Off-year election	-714.897	-0.769

Summary Statistics	
N	29
r^2	0.948
F	151.425***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

DEMONSTRATION EFFECT

T A B L E C.31
Multiple Regression Analysis of Demonstration Effect with Corrections Employment

Predictor Variables	Beta Coefficients	t-statistic
U.S. households with TV sets	-661.161	-0.584
U.S. urban riots and strikes	-51.455	***-4.645

Summary Statistics	
N	29
r^2	0.644
F	23.537***-

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.32
Multiple Regression Analysis of Demonstration Effect with Health & Human Services Employment

Predictor Variables	Beta Coefficients	t-statistic
U.S. households with TV sets	5,271.572	***4.008
U.S. urban riots and strikes	-58.987	***-4.581

Summary Statistics	
N	29
r^2	0.872
F	88.237***-

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.33
Multiple Regression Analysis of Demonstration Effect with Highways Employment

Predictor Variables	Beta Coefficients	t-statistic
U.S. households with TV sets	-401.650	-1.649
U.S. urban riots and strikes	5.869	*2.461

Summary Statistics	
N	29
r^2	0.609
F	20.287***

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.34
Multiple Regression Analysis of Demonstration Effect with Higher Education Employment

Predictor Variables	Beta Coefficients	t-statistic
U.S. households with TV sets	6,406.865	***6.359
U.S. urban riots and strikes	-68.309	***-6.925

Summary Statistics	
N	29
r^2	0.942
F	211.038***-

* p ≤ .05
** p ≤ .01
*** p ≤ .001

T A B L E C.35
Multiple Regression Analysis of Demonstration Effect with "Other" Employment

Predictor Variables	Beta Coefficients	t-statistic
U.S. households with TV sets	2,557.770	***3.740
U.S. urban riots and strikes	-31.737	***-4.741

Summary Statistics	
N	29
r^2	0.869
F	86.144***-

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$