A COMPARISON OF ECONOMIC DEVELOPMENT BETWEEN TEXAS CITIES USING THE ECONOMIC DEVELOPMENT TAX 4A/4B AND TEXAS CITIES NOT USING THE TAX

by

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Presented to the Faculty of the Graduate School of

The University of Texas at Arlington in Partial Fulfillment

of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

May 2012

ACKNOWLEDGEMENTS

My sincere gratitude goes to my supervising professor, Dr. Rodney Hissong, who provided valuable guidance, support, encouragement and compassion to keep my morale high. Although I was away from the Metroplex, Dr. Hissong had the patience to work with me though e-mails and audio-conferences. I am equally thankful to my other committee members Dr. Sherman Wyman and Dr. Ardeshir Anjomani for their input.

I wish to thank Mohammed Abdul Mujeeb of Fort Worth, TX for his I.T. help. Sincere thanks go to my family for their continued support and to my sister Sneh Lata Jain of Bluefield, VA who incessantly asked me the expected completion date. My late father Shri Roshan Lal Jain who showed us the light for higher education would have been very proud of me for achieving this degree.

April 19, 2012

ABSTRACT

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Objective. Over the last three decades, economic development has been a major policy issue in the State of Texas. But after the amendment of the Development Corporation Act of 1979 and subsequent amendments, municipalities are using the provisions of Section 4A and 4B to enhance economic development. The purpose of this research is to determine if the Section 4A/4B adopting cities are doing better in employment and income growth than the non-adopting cities. *Methods*. Using the employment, income, population, and quality of life variables data for years 1990, 2000, and 2007, this study evaluates the impact of ED policies of Sections 4A/4B on employment and income growth. Multiple regression models are used including Wooldridge's Fixed Effects model. *Results.* The inference from all the models can be summarized that: (1) Sales tax revenues collecting cities under the provisions of Sections 4A/4B are not doing better than the non adopting cities both in employment and income growth; (2) Other ED

policies such as TIFs, Freeport Zones, Property Tax abatements, etc; have statistically significant contribution at 90 percent confidence level. *Conclusions*. The research cast doubt on the efficacy of Sections 4A/4B economic development policies.

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CHAPTER 1

INTRODUCTION

The key function of the local governments is to provide services such as public safety, healthcare, transportation, fire protection, education, and social services for its residents (Holtz-Eakin, 1996) and create an environment conducive to create jobs by retaining or attracting investors. Providing adequate services requires resources. Municipal governments have very limited choices to raise funds necessary to provide adequate and quality services. Therefore, the cities make a concerted effort that businesses locate in their city. If there is a healthy and growing business base in a city, it provides a reliable tax base that in turn raises revenues for the treasury. Generally, a healthy business base also provides jobs that are essential to fuel the engine of our consumer based economy. Creating jobs is also very popular slogan among the elected officials. When those who are eligible to work are employed, it is expected that people will have sufficient income to spend. The higher the average wage, the residents can buy instead of renting homes. This scenario helps both the businesses and the local government. The employed residents contribute to the local economy which translates into increased incomes for the businesses and increased sales tax and property tax revenues for the city. This situation offers a great story for the elected officials during their election campaigns.

1.1 The Necessity of Economic Development

It is almost a necessity for most of the city governments to have economic development departments to attract new businesses or retain the existing ones. Economic development can bring in new business, expand existing businesses, create jobs, increase average income, make available more discretionary funds, and for the city government, more revenues through growth and taxes. When a primary business decides to open a new plant in a city, several supporting services and ancillary product plants are also attracted. With the growth in business, job market increases in the city. With more people employed, local retailers' sales and revenues also go up. With more jobs created, housing market improves. Collectively, all these contribute to the city revenues as a result of property, sales tax and user fee growth. With enough revenues at their disposal, the cities can not only perform their basic key functions but also provide good roads, better schools, park and recreation facilities, libraries, transportation, necessary health services, thereby increasing the quality of life. Such an idealistic environment in a city will attract more business, music and opera, malls with nationwide chain stores, institutions of higher learning, etc. Building such an environment has almost become necessary to attract businesses because there is increased competition in this era of global economy. It is no different than attracting a big event like Super Bowl game of the National Football League, or the Olympics or major political party's convention for Presidential race. Cities add amenities, infra-structure,

shopping malls, hotels, and nightclubs to win the event because there is tough competition and such events brings job and are a boost to the economy. To win the Super Bowl XLVI, Indianapolis, Indiana did exactly like that and in this "landlocked railroad stop with no beaches, no mountains, no casinos, no desert spas", they added what it took to compete despite the exogenous factor of February cold (American Way, January 2012). Like the above mentioned events, the competition to attract a business to start a plant or expand an existing plant has become very intense at the state and the city level governments.

1.2 Business Location and Tax Incentives

In today's interdependent world economy and access to cheap labor and instantaneous exchange of information, it has made it more complex for the state and local governments to compete not only with each other but with international players. "Low-cost land with transportation and communications infrastructure in place is no longer scarce. Technology quickly jumps national borders. Costs for reliable labor are lower in many places across the globe" (Nolan, et al 2011, 26). This illustrates that the low-cost competitive environment, has made it much more competitive to attract new businesses. Therefore, the governments are spending more money in subsidies and benefits to attract or retain businesses. This practice of tax incentives and benefits has become so pervasive that the states are literally at war with one another

(Bowman, 1988; Burner, 1992; Guskind, 1989; Haider, 1992; Hanson, 1993; Kenyon, 1991).

Of course, there is nothing new to the phenomenon of states subsidizing private industry with public money. The incentives offered can be in various forms, but tax-related incentives are very common. Incentives may be one of the tools to attract new business but the business climate and other factors such as good school districts, qualified workers meeting industry's technical needs, transit system, recreation amenities, etc. in a state or region, can be a strong magnet to attract new or retain an existing business.

In a recent article in The Examiner published from Washington, DC, it was reported that "Virginia Governor Bob McDonnell has been poaching jobs from Maryland", thereby intensifying the longtime rivalry between the neighboring states (November 10, 2011). However, a closer review of the reasons for businesses to opt for Virginia over Maryland shows that despite the location of both in proximity to Washington D.C., it is the tax structure of Virginia that has a significant impact. Corporate income tax in Virginia is six (6) percent versus 8.25 in Maryland and there is no local income tax in Virginia. Personal income tax is also higher in Maryland. According to this article, "Economists point to Maryland's high corporate and personal income taxes as the top reasons why corporations favor Virginia". This assumes greater significance in the light of that Maryland had offered Bechtel $9.5 million in taxpayer's money to stay in MD, but Bechtel opted for VA. After Northrop Grumman chose Fairfax

County, VA over Montgomery County, MD to move its headquarters, the Maryland Governor has ordered a review of state agencies to identify regulatory burdens that stifle job creation. This news item illustrates that the tax rates impact the decisions of businesses in selecting the location which in turn can affect the growth in the economy of a state or local jurisdiction. The literature is full of pros and cons of the impact of lower taxes on business location decision discussed in chapter 3.

Businesses were offered tax-related incentives in colonial times and the practice has increased even since (Eisinger, 1988; Taylor, 1994). In those days, towns offered bounties to attract entrepreneurs and skilled craftsman. New Jersey awarded Alexander Hamilton tax incentives to locate a factory there in 1791 (Taylor, 1994). The states provided capital to private industries and financed infrastructure. By 1844, Pennsylvania had invested more than $100 million and placed directors on the boards of more than 150 corporations. (Buss, 2001).

1.3 Competition in Incentives and Rebates

Since the 1930s, state and local governments have competed for industrial projects and for chances to be sites for big businesses to provide jobs, income, and other economic opportunities for their residents. Nearly sixty years ago, it started with Mississippi's "Balance Agriculture with Industry" program (Fisher & Peters, 1998). This competition has been at the crux of economic development activities and in many cases the overarching strategic plan of local

and state governments (Watson and Morris, 2008). Almost every state and metropolitan area has expanded the size and scope of economic development programs. More money is being spent on subsidies to new branch plants at increasing rate, and even conservative states have intervened in the private market by subsidizing business research and industrial modernization (Bartik, 1991).

Policymakers have responded with a host of incentives designed to alter location decisions. According to Anderson and Wassmer (2000, page7), "in 1991, every state had the option of providing relief from at least one of its major taxes. For example, 34 states provide that the inventory held by a business can be at least partially exempt from property taxation. Minnesota, North Dakota, and New Jersey offer some form of exemption or credit toward the state corporate income tax. Efforts to conserve energy are granted special treatment in 27 states, while 38 states offer preferable tax treatment for pollution control equipment. A state-based investment tax credit exists in at least 25 states. The same number of states offer a business tax credit or exemption for new job creation. Local governments abate or exempt business property from taxation in 33 states by 1991". Tennessee state and local governments provide subsidy with a net present value of $144 million, mostly in the form of property tax abatements to General Motors Saturn plant (Fisher and Peters, 1998).

The state of Kentucky gave a much larger subsidy to Toyota. State and/or local governments can also exempt a business from sales and use taxes

in Illinois, Minnesota, and New Jersey. Tax forgiveness, tax increment finance authorities (TIFAs), industrial development bonds (IDBs), municipal land acquisitions, establishment of development authorities and zones, and other related activities are some examples of incentives accorded to bring in new, to expand the existing, or to retain the existing businesses (The National Association of State Development Agencies (NASDA) 1983). In addition to the usual incentives to enhance economic development, some states use employment tax credits as one of the primary tools of state economic development Faulk (2002). Last two decades have seen serious competition among jurisdictions to attract businesses to enhance economic development in their areas. Armed with the wide variety of incentive packages public officials attempt to retain existing plants, facilitate plant expansions and attract new plants. Thus limited local resources must be distributed between incentives for job growth and basic services like protection, safety, healthcare, and other social services. Local governments like any other level of government are affected by the economic cycles. In addition to funds from property tax, sales and use tax, they are to a large extent dependent on the higher level governments for carrying out their business. At the national level the issue of economic development has taken increased significance because of the long run fiscal pressures, constrained by budget deficits, a conservative political philosophy and Iraq and Afghanistan wars. This has thrust industrial recruitment to the top of the state and local policy agenda. With many federal development programs eliminated or reduced sharply, the amount of state and local money to

“buy payroll” during the 1980s spiraled upward. This resulted in local governments assuming increased responsibility and flexibility to explore ways to raise revenues. One of the ways to achieve this goal of enhancing economic development is to attract businesses to create jobs.

1.4 Economic Development in Texas - A Novel Approach

Texas Legislature passed Section 4A in 1989 to improve economic development (Handbook of Economic Development Laws for Texas Cities, 2008). But instead of giving tax incentives or rebates, it authorized the local governments to impose sales tax subject to certain constraints and to use the revenue raised through this sales tax for creating Economic Development Corporations which this study will explore if the Texas cities that adopted the Economic Development provisions had any impact on increasing jobs and income versus the cities which did not utilize these economic development avenues. Data for population, income, civilian employment, and variables that operationalize quality of life attributes will be collected for 1990, 2000 and 2007. Although it is relatively easier to get decade-ending data, year 2007 is selected instead of 2010 to avoid effect of recession that began in 2007 as determined by the National Bureau of Economic Research. Multiple linear regression models will be developed to estimate the impact of Section 4A/4B economic development policies.

1.5 Organization of Research

The starting point of the research is the economic development activity in the state of Texas that began with the passage of the Development Corporation Act of 1979 (Texas Civil Statues Article 5109.6) that allowed municipalities to create nonprofit corporations (called development corporations) by adding half percent sales tax subject to definite criteria that promoted the creation of new and expanded industry and manufacturing activity within the municipality and its vicinity.

Chapter 2 includes local economic development, the effect of national and state economy on cities, agglomeration economies and their impact on different economic regions, followed by literature review including pros and cons of various rebates and incentives offered to the businesses to expand or start manufacturing plants in their jurisdiction, with the objective of bringing jobs to the state.

Various studies have been done to determine impact of the incentives on the outcome of economic development. However, these studies experience problems in comparing cities. For example, since so many differences exist between localities, the inter-regional studies find the results not conclusive. In addition, the provisions of Sections 4A and 4B are unique to the State of Texas and therefore, the results are not comparable to other non-Texas cities. Other states such as Georgia, South Carolina, Wisconsin, and Iowa have used some variant of sales tax for property tax relief. The State of Florida passed local

discretionary tax in 1987 that authorized to levy a 0.5% to 1.0% sales tax to finance local capital construction and infrastructure. This new revenue source was needed to overcome the limitation on the existing property tax to provide resources for economic development. Thirty seven (37) out of Florida's sixty seven (67) counties adopted the Local Government Infrastructure Surtax (LGIS) as one of the local discretionary taxes (Kim, Bae, and Eger III, 2009). In Georgia (Zhao, 2005 and Ihlanfeldt, 2001) these taxes have two features. First, they are optional. That is local residents have a choice to decide whether to adopt these taxes. Second, they are usually earmarked for some specific purposes, such as education, transportation, capital improvement, or property tax relief. Although similar in that the tax is imposed after voter approval, Texas 4A and 4B are unique that the revenue is to be used only for economic development purposes.

Chapter 3 will detail the history of Economic Development in Texas with special emphasis on Sections 4A and 4B passed in 1989 and modified in subsequent years that allowed the creation of a new type of development corporation funded by the imposition of a local sales and use tax dedicated to economic development.

Chapter 4 will state the hypothesis and describe the data and methodology used to test the hypothesis, followed by the analysis of the models used to test the hypothesis. Chapter 5 will include regression models, statistical results, and analysis followed by conclusions and recommendations in Chapter 6.

CHAPTER 2

LOCAL ECONOMIC DEVELOPMENT

AND LITERATURE REVIEW

2.1 Economic Development

Economic Development implies that the welfare of the residents is expected to improve as a result of private entrepreneur, state or local government's efforts to create jobs. What does this mean? It means that overall the standard of living will improve, median household income level will rise, services provided by the city will improve in quality and in response for all citizens, unemployment will decrease, etc. This includes increase in median household income and decrease in unemployment, as measures of economic development, along with several other parameters. Some researchers describe "economic development as the practice by which wealth generation is attained through the goals of job creation and increasing the local tax base" (Blakely and Bradshaw, 2002; Blakely and Green Leigh, 2009). But other economists call increase in per capita income as economic growth (O'Sullivan 2007). Others explain economic growth as an increase in total output or income (Greenwood and Holt, 2010). Currid-Halkett and Stolarick (2011) describe economic development as "an essential component of local policy and governing and a perceived driver of success and vitality of localities, cities and regions alike".

For the purpose of this research, these two terms economic development and economic growth will be used interchangeably. “Conventional economics has equated economic growth with economic development, implicitly assuming that growth will bring improvement in quality of life and in the standard of living. However, standard of living refers to overall wellbeing that goes beyond income”, (Greenwood and Holt, 2010, p3). This means that if overall income increases on one hand but crime and pollution increase simultaneously, then the standard of living has fallen. In a broader sense, the objective should be to improve the standard of living and the quality of life, for individuals within a community. To achieve this goal, state and local policy makers have been increasingly seeking policies, which are most cost effective in stimulating their jurisdictions’ economies.

Economic development has been a major policy issue for most of the metropolitan areas in the United States for at least three decades. Economic development can bring new business or expand an existing business, with the express objective of increasing or creating employment opportunities for local residents. The cities achieve this objective by offering the businesses some incentive that results in reducing their cost of operation. It is comparable to micro-level fiscal policy. The city assists in increasing expected profit of the firms by reducing the tax burden or the cost of operation and in return the city hopes to foster company’s growth or attract new business to the area.

These policies help in two ways. The assisted firms expand operations and hire more people. The arrival of the new business or the expansion of the existing one can potentially bring in some ancillary business in support of the initial firm. This means more jobs opportunities and hence improvement in income and economic wellbeing. On the government side, it means greater tax revenue and more funds for providing improved city services.

2.2 Local Economy and Economic Growth

Numerous forces affect local economies. An expanding or contracting national economy can affect favorably or adversely local economy as can change in the regional or state economies. The events of September 11, 2001 and the on-going wars in Iraq and Afghanistan, coupled with the downturn of global markets, have created recessionary conditions in the country. The unemployment rate is stubbornly above 8.4%, federal budget is in red by more than $14.3 trillion, and the credit rating of USA has been downgraded from AAA.

According to the Wall Street Journal (July 22, 2011), more than one in three of the unemployed workers in several of the largest U. S. states have been out of job for more than a full year. Across the country, long periods of unemployment have been more prevalent recently than previous recoveries going back to the 1940s. Nationally, 30% of the unemployed, 4.4 million job seekers, were out of for more than a year in June 2011, up from 29% of the unemployed in June 2010. A headline in USA Today on June 24, 2011 summarized this economic condition: *Jobless claims up, home sales down*.

These recessionary conditions are affecting most of the states adversely and because of lack of funds, teachers, police officers, fire fighters, etc. are being laid off. Library and recreational services like parks and swimming are curtailed. And it is not just the United States which is affected by these recessionary conditions. Worries about the global economy are rippling through financial markets in Europe and Asia as well. Since the states are required to have a balanced budget, these conditions have further put budgetary burdens on the states.

Notwithstanding the budgetary constraints, the local governments must provide basic services and balance their budgets. The local governments have to work with assumption, namely, that the public resources are finite and public needs infinite. To provide these services, the local governments use their power to tax to raise revenues.

But if the taxes are too high, residents of the city might think to move to some other city. In addition, in adverse economic conditions, it can be a political and economic suicide to raise taxes. The idea is that citizen mobility is greater at the local level than at the national level; thus the Tiebout (1956) mechanism allows them to “vote with their feet” by choosing a residential jurisdiction that closely matches their preferences for local public goods and services (Stansel, 2006). From this perspective, residents and businesses seek the best tax-to-services ratio and will move from one locality to another to attain it. The Tiebout mechanism is very simple. If the residents of a city feel that the municipality they

live in, has high taxes compared to other regional cities, then they will move to cities of their liking. “Voting with their feet” represents moving to more desirable municipality. This means the local governments do have real constraints on raising the taxes. California’s Proposition 13 has shown that increasing taxes without serious resistance can no longer be taken as granted. Following Proposition 13, which abruptly reduced local property tax revenues in the state by half, in 1980, Massachusetts voters approved Proposition 2 ½, which set an absolute limit on the property tax rate and the annual increase of tax levy (Zhao, 2005). This opened the floodgate and many other states followed suit. Therefore, one of the most important policy issues facing major metropolitan areas in the United States now and for at least the past three decades, is economic development in their jurisdictions, not only for jobs, but also to discourage mobility, specifically of middle- to upper-income residents, by adopting policies that strengthen the local economy and for revenues that can be generated as a result of business growth (Hunter, 2001).

The situation gets further complicated because of the pressing urban problems, such as crime, poverty, unemployment, blight, deteriorating infrastructure, and fiscal stress and from the continued redistribution of employment and residence from central cities and inner suburbs to outer suburbs and rural areas (Anderson and Wassmer, 2000; Mark, Mcguire and Papke,2000). Redistribution of economic activity within most metropolitan areas has also created labor market issue of a spatial mismatch between low-skilled

employees residing in central cities and inner suburbs and potential employers located increasingly farther out in urban areas. Paul Peterson (1981) in his *City Limits* book argues that individuals weigh the costs and benefits of local government services in their residential location decisions. He asserted that city officials recognize the import of these individual decisions. Furthermore, officials are primarily interested in the strength of their city's economy and therefore want to retain and attract middle- and upper-income households and businesses. These two conditions, the mobility of residents, individuals and businesses and the concomitant intercity competition, result in policy making that prefers developmental policies to build the local economy over redistributive policies. However, in many areas, local governments are increasingly working together to address inter jurisdictional problems and issues by forming regional partnerships to foster the economic development of a multi jurisdictional or regional area (Olberding, 2002), with the objective of enhancing economic growth in their region.

Among the various sources of economic growth, agglomeration economics has a significant impact on creating jobs. The economic forces that cause firms to locate close to one another in clusters are called agglomeration economies. The forces acting on firms in a single industry are called localization economies, indicating that they are "local" to a particular industry. When agglomeration economies cross industry boundaries, they are called urbanization economies. Urbanization economies depend on the aggregate

level of economic activity in a given area, and therefore, benefit all, regardless of their industry. Urban economy theory suggests that agglomeration economies contribute to growth by physical proximity that increases productivity through input sharing, labor pooling, labor matching, and knowledge spillovers. This results in lowering of costs of specific skill types. Search costs for a computer software designer are expected to be lower in a metropolitan area where large number of software firms are located.

Information networks efficiently match perspective employees with employers who have demand for such skills. The experience of the designer is easily determined by virtue of his or her work performed in the area. The reputation of the company is equally determined by local information. This type of information reduces the time and resources necessary to hire a new person. It also attracts more designers and designing companies to the area. Other localization economies occur in the intermediate goods market and the consumer final goods market. Metropolitan areas characteristically exhibit localization economies and urbanization economies to perspective firms.

Theater and fine arts communities also benefit from large population bases. The presence of arts community creates an amenity that attracts industries and population further increasing the size of the metropolitan areas. Agglomeration economies play an integral role in urban growth by attracting population that demands a variety of goods and services. To satisfy such needs of goods and services attracts more firms supplying such products. In turn, this

attracts labor with specialized skills that earn higher labor income (Fujita and Thisse, 2002).

2.3 Economic Development Literature Review

Economic development has assumed great significance over the last three decades and as a result there is a vast literature on the subject of economic development. The literature review will focus on various economic development incentives that the cities and the states have used including the degree of impact of these incentives.

Cities use various policies to economic development in their jurisdictions. Various incentives are used to affect the business location decisions. Obviously funding for other services is impacted when the resources are used to promote economic development with the hope of improving the revenues, the services and quality of life. Do these incentives work? Do the tax policies of the states and the cities affect business location decisions? Critics argue that the state and local economic development policies cannot achieve these benefits. The reason given for such criticism is that the policies have little effect on growth of a small region such as state or metropolitan area. Also the state and local taxes are too small a percentage of business costs to affect growth decisions.

Numerous studies have shown that taxes, in general, have a small or no effect on employment (Faulk, 2002). Surveys of business firms often show a

low ranking of state and local taxes as a location determinant. However, other researchers such as Bartik (1991) have argued that economic development policies can significantly affect the growth of a state or metropolitan area, help the unemployed and improve the overall economy. Recent econometric evidence indicates that variations in state and local taxes do have effects on state or metropolitan growth that are likely to be considered significant by most policy makers (Luce, 1994; Mark, McGuire, and Papke, 2000).

Abatement of taxes is one type of policy to attract new business or retain or help in expansion of an existing business. The business entity has to evaluate the total package offered by the city or state to determine its value to the firm (Grubert and Mutti, 2000). It may include tax incentives like corporate income tax, sales tax, property tax; non-tax incentives like general-purpose financing, customized job training, infrastructure subsidies. In addition the firm may consider the quality of services such as transportation and police; rating of school district; etc. The firm has to evaluate the value of such incentives in the context of its bottom line. Fifty million dollars of BMW's $130 million package included expansion of the Greenville-Spartanburg airport. However, It is reasonable to assume that all the benefits of expansion will not be captured by BMW. The value to BMW will be much smaller than $130 million. The firm in making their location decision considers all these factors affecting the firm in the short run and long run.

Table 2.1 lists the options available to states for the inducement of economic development. In addition, the State of Texas offers Tax Increment financing, Freeport and Super Freeport exemptions, Property tax abatements, Issuing Debt to finance economic development, etc. Appendix 1 lists economic development programs and tools available in the State of Texas.

Table 2.1 Economic Development Incentives Offered within the United States

Economic Development Initiatives (EDIs)
Manufacturing Revenue Bonds (Tax Exempt)
Manufacturing Revenue Bonds (Taxable)
General Obligation Bonds
Umbrella Bonds
Manufacturing Revenue Bond Guarantees
Direct State Loans
Loan Guarantees
State-funded Interest Subsidies
State-funded Equity/Venture Capital Corporations
Privately Sponsored Development Credit Corporations
Customized Manufacturing Training
Tax Incentives
Enterprise Zones
SOURCE: NASDA (1983 and 1991)

2.4 The Incentive Debate

The literature is full of research as to whether or not the incentives offered by the cities or states have any effect on business location and employment opportunities. The critics of using incentives to promote economic development believe that the reduction in local unemployment and upward swings in real wages are short term because of labor mobility. If that is true, then the

macroeconomic policies that affect the short run performance of an economy may also affect its long-run performance. According to Bartik (1993), short-term economic development policies do affect long run prospects. Short term economic development policies provide the benefit of higher land and property values because some folks did get jobs, acquired skills and increased their employability and real wages in the long run.

Bartik research has another argument in terms of efficiency. Bartik argues that cities that have high unemployment may enjoy greater social benefits from an additional local job than the cities with low unemployment. High unemployment cities are also more likely to have underused public infrastructure and services. An additional job poses little additional public cost to the city. Local incentives that redirect a job from a low unemployment city to a high unemployment city are efficient in the sense of correcting the misruled market signal that exists without it. However, a business location decision does not depend just on the incentives, specifically tax incentives. Unionization, corporate taxes, infrastructure, educational institutes, medical facilities, closeness to the airport, and a whole of other factors impact the location decision (Bartik, 1985).

Incentives can be in different forms. But the tax incentives are more prevalent. Offering tax incentives to firms is part of the state and local policy maker's tool kit used to attract or maintain economic activity in a jurisdiction (Hanson and Rohlin, 2011). Chi and Leatherby (1997) has provided the list of 15 most common business tax incentives. Table 2.2 lists these incentives and it

shows that twelve incentives were used by at least two thirds of the states in 1996.

Table 2.2 States Use of 15 Most Common Tax Incentives, 1996[1]

Incentive	1996
Goods in transport tax exemption	49
Raw materials for manufacturing tax exemption	49
Sales and/or use tax on new tax exemption	47
Manufacturers' inventories tax exemption	46
Job creation tax incentive exemption	44
Equipment and machinery tax exemption	42
Accelerated depreciation	41
Industrial investment tax incentive	39
Corporate income tax exemption	37
Land and capital improvements tax exemption	37
Research and development tax exemption	36
Personal income tax exemption	33
Excise tax exemption	24
Tax stabilization agreements	8
Specified state specified tax credit	6

[1]Chi, K.S. and Leatherby, D., "State Business Incentives", Council of State Governments, 1997. Lexington, Kentucky.

Because tax incentives are not part of most state budget processes, they are not subject to political interference (Snow, 1999). All political factions

use tax codes. Businesses receiving them are most supportive, whereas taxpayers funding them are largely unaware or indifferent. Those who support tax incentives rationalize using the arguments such as protecting the state or city from losing business to other state or city or rescuing failing business which could have drastic consequences for the state or city employment and revenues (Buss 2001). However, the literature is replete with the articles by those who oppose the tax incentives and provide stories in which incentives did not work or did not produce revenue or job growth (Glickman and Woodward 1989, Guskind 1990, Hovey 1986).

Researchers on both sides of the issue have justified their findings and criticized the other side. However, the arguments do not lead to a definite result and it appears that the real winners are the businesses that get the benefits. There is ongoing debate centered on the effectiveness of local economic development practices and their efficacy. The literature is full of research with arguments going in both directions. Part of the problem is the lack of consensus on a generally accepted definition of economic development or ways to measure it. (Hissong, 2001). Most of the local incentives are site specific. As Courant (1994) stated that this geographical heterogeneity is extremely difficult to correct for statistically.

Bartik (1991) research and recent econometric evidence indicates, though not very rigorously, that state and local business taxes do have effects on state or metropolitan area growth that are considered to be significant. He

concludes that state and local taxes do exert a statistically significant negative influence on the location choice of firms. Bartik's argument is that incentive-induced employment growth has advantageous long-term effects on a locality's labor force participation and unemployment rates. This effect increases in magnitude as the size of the area under consideration diminishes. This impact is long-term, progressive and salutary.

Ebert and Stone (1992) also find increased labor force participation of local residents to be the primary labor supply response to increased job growth. These results are in line with Bartik's (1991, 1993, 2001) findings that strong employment growth benefits workers with the least skills and education because a tight labor market forces employers to hire them. This outcome lowers the area unemployment rate and increases area labor force participation. Partridge, Rickman & Li (2009) research on county level employment growth yielded similar results. That is successful local economic development initiatives can provide benefits to original residents across a wide range of nonmetropolitan areas, particularly to those that have had persistently high poverty. Anderson and Wassmer (2000) explain this positive impact of incentive induced economic development policy by describing economic theory related to the intra-metropolitan location of business enterprises. The firms have a demand for sites that are supplied by municipalities. The influence of local fiscal variables tax and spending levels exert more influence at an intra-area level compared to an inter-

area level on business location choice, because more of the variables that influence location are held constant.

Fisher (1997), Wasylenko (1997) and Mark, McGuire and Papke (1997) discuss both inter-regional and intra-regional studies to determine whether taxes and other policy variables impact location of firm decision. Taxes vary from one locale to another within a region while many labor market and cost factors are constant. Therefore, the effect of taxes is expected to be more important in intra-regional decisions. They concluded that taxes are a statistically significant factor.

The importance of state fiscal policies on economic growth is very succinctly described in a recently published article in Public Finance Review. The authors (Alm and Rogers, 2010) discuss this issue by addressing the average annual growth rates of individual per capita income for the forty-eight contiguous states from 1947 to 1997. It varied from 1.73 to 3.15. What factors affect the rate of economic growth? Some factors like climate and proximity to national markets cannot be changed by state or national government. Other factors like labor force skills can be changed in the long run. Thus we are left with fiscal policies –tax and expenditures- as the primary means available to state governments for accelerating economic growth in the short run. The research indicates that state economic policies matter. The correlation between state and local taxation policies is often statistically significant. There is moderately strong evidence that a state's political orientation (the political party

of governor and presence of tax and expenditure limitations) has consistent and measureable effects on per capita income growth rates. However, Hines (1996) and Tannenwald (1997) in their studies came to opposite conclusions about the effect of taxes on location of a firm decision.

But tax incentives are just one way to attract businesses to start or expand in a city or state. Other examples are manufacturing revenue bonds, general obligation bonds, loan guarantees, enterprise zones; etc. Enterprise zones (EZ) programs are very high on the list of economic development policy makers. EZ programs provide tax incentives for investment and job creation in economically depressed areas.

The notion of EZ began in Britain, when Geoffrey Howe of the British Conservative Party called for tax exemptions for firms that located in a specific area. The idea spread to the United States, and in June 1980, Congressmen Jack Kemp and Robert Garcia introduced EZ legislation. By the time federal legislation was passed in 1987, more than 30 states had EZ programs up and running. The research has shown that EZ programs created jobs at low cost and average economic activity increased after the area achieved EZ status. (Billings 2009, Boarnet 2001, Couch & Barnett 2004, Elvery 2009, Lambert & Coomes 2001, O'Keefe 2004). However, the research points out that determining factors to be classified EZ are politically motivated rather objectively. Some of the other financial methods include abating property tax liability within an enterprise zone (EZ) or a Freeport Zone and redirecting property tax revenue by virtue of tax

increment finance agreements. The location-based tax incentives do impact the establishment location and employment but in varying degrees across industry sectors. The empirical analysis shows that location-based tax incentives have a positive effect on firm location in some of the industries and a negative effect in industries that could be crowded out (Hanson and Rohlin, 2011).

Since 1989, the type of projects which were allowed under the economic development legislation has undergone many changes as a result of several amendments to the original Act. While in the beginning, the emphasis was on manufacturing and industrial type of projects with the intent of expanding or retaining the businesses, to create jobs, it is no longer a requirement to create jobs in certain situations and the ED sales tax revenue can be used for projects that enhance the quality of life. There is hardly any distinction between Type A (Section 4A) and Type B (Section 4B) corporations. Cities are using these funds on enhancing property values. However, there is no visibility on property enhancements in the annual report that the cities are required to submit to the Attorney General's office. The report includes primary economic development objectives and the choices are job retention or creation, tourism, sports and recreation facilities, infrastructure projects and others. How the enhancement of properties affects the creation of jobs or increases the revenue because of high property value, is beyond the scope of this research.

Based on the literature review, I believe that the incentives do help in attracting the businesses and creating jobs but the quality and the quantity of

these jobs varies from one location to another. This research will address the effect on employment change and the average household income change as a result of a specific economic development policy in the State of Texas.

CHAPTER 3

ECONOMIC DEVELOPMENT IN TEXAS

3.1 Economic Development in Texas

In the previous chapter, various incentives to attract or retain a business in a city or state were discussed. These involved in one form or another concession in taxes or providing infrastructure (airport expansion, roads, training and facilities). The end result in each of these offerings was to lower the cost to the business and thereby making it attractive or more profitable to the firm in locating the business in the offering city. Texas like any other state promotes economic development in various ways. Appendix 1 lists various programs through which the State of Texas promotes economic development. The list is the Table of Contents from Economic Development Handbook published by Attorney General's office. The first section is titled Sales Tax for Economic Development. Unlike other rebates on certain types of taxes to promote economic development, the State of Texas is imposing sales tax with the voters' approval, to promote economic development. In Texas, the new revenue measure passed under the Development Corporation Act that allows the cities to impose sales tax subject to ceiling constraints provides a new source of revenues to promote economic development.

Although the sales tax exemption has been used as an incentive for economic development (Mikesell, 2001), the Development Corporation Act is different in the sense that it uses the sales tax to raise revenue to promote economic development. Some cities have taken advantage of this new source and some have not. Since 1989, 558 cities have levied an economic development sales tax under Sections 4A or 4B or both (Economic Development Handbook 2008 published by the Office of the Attorney General of Texas, p3).

During the 1990s, 164 cities with population greater than 10,000 were eligible to adopt the economic development (ED) tax in the form of Section 4A or Section 4B, or both. The number has grown to 180 by 2007. Out of 180 cities eligible for adoption of these Sections, 114 have adopted the ED tax. For the purpose of this study, if the eligible city had a population of 10,000 or more in 2000, it was included in the data, notwithstanding if the population threshold of 10,000 in 1990 was met or not. Actually, there were 21 cities in 1990 data which had a population of less than 10,000. Table 3.1 shows that the mean of the population of the cities adopting ED is less consistently from 1990 to 2007. This is in line with the intention of the original legislation of providing a tool for smaller cities competing for economic development. On the average, the population means differ by about 8,000 between ED adopting and non-adopting cities.

Table 3.1 Mean of Population of ED Adopting vs. non-Adopting Cities

	1990 – 2000		2000 - 2007		1990 -2007	
Description	Count[1]	Mean	Count[1]	Mean	Count[1]	Mean
Cities not adopting ED	66	38,367	51	49,739	51	55,753
Cities which adopted ED	114	32,137	129	39,369	129	46,580
Mean of all 180 cities		34,421		42,308		49,179

count[1] is the count at the end of the period

Table 3.2 provides the information of employment means between adopting and non-adopting cities. The cities adopting Sections 4A/4B have lower employment in 1990 as is expected. That is one reason these cities adopted economic development policies to enhance employment. This policy decision is in conformity with the intent of the legislation. However, the percentage increase in employment of the adopting cities is far less than the non-adopting cities (28.20% vs. 22.52% between 1990 and 2000).

Table 3.2 Mean of Employment of ED Adopting vs. non-Adopting Cities

	1990 -2000		2000 - 2007		1990 -2007	
Description	Count[1]	Mean	Count[1]	Mean	Count[1]	Mean
Cities not adopting ED	66	17,956	51	23,019	51	26,945
Cities which adopted ED	114	14,418	129	17,666	129	21,939
Mean of all 180 cities		15,715		19,183		23,357

Count[1] is the count at the end of the period

Table 3.3 shows the median household income means at three points (1990, 2000 and 2007) between the cities that adopted these Sections and those which did not adopt. All dollars are shown in year 2000 $.

Table 3.3 Mean of Median Income of ED Adopting vs. non-Adopting Cities

	1990 -2000		2000 -2007		1990 -2007	
Description	Count[1]	Mean	Count[1]	Mean	Count[1]	Mean
Cities not adopting ED	66	$40,410	51	$44,785	51	$44,639
Cities which adopted ED	114	$37,897	129	$43,065	129	$41,511
Mean of all 180 cities		$38,819		$43,552		$42,397

Count[1] is the count at the end of period

Cities adopting ED policies under Sections 4A/4B have lower mean, although the range of the difference between the means has narrowed, though not substantially.

3.2 History of Sections 4A/4B Sales Tax Legislation

Prior to 1979, there were few statutory vehicles in Texas that facilitated economic development efforts. Business leaders asked the Texas Legislature for authorization to create an entity that could encourage the development of new local commerce.

The Texas Legislature passed the Development Corporation Act of 1979 (Texas Revised Civil Statues Article 5190.6). The Development Corporation Act of 1979 (the “Act”) allows municipalities to create nonprofit

development corporations to promote the creation of new and expanded industry and manufacturing activity within the municipality and its vicinity. The development corporation was unfunded by the city, as restricted by the state legislation (Joslove, 2000). The development corporations operated separately from the municipalities in conjunction with industrial foundations and were dependent for funding from private sources. Thus these corporations were only as effective as these were persuasive in soliciting funds which was always difficult.

Back in 1936, Mississippi was the first state to actively encourage private industrial development through publicly sanctioned activity which was achieved by issuing industrial development bond backed by the revenue stream of private projects. But Texas Constitution did not permit public expenditures or private economic development. In November 1987, the voters approved an amendment to the Texas Constitution that allowed expenditures for economic development because they serve a public purpose and were therefore, permitted under Texas law. This amendment states in pertinent part:

> Notwithstanding any other provision of this constitution, the legislature may provide for the creation of programs and the making of loans and grants of public money for the public purposes of development and diversification of the economy of the state. (Tex. Const. art. III, § 52-a.)

Subsequently, many new laws were passed granting economic development authority to municipalities. In 1989, the Texas Legislature amended the Act and added Section 4A. Section 4A allowed the creation of a new type of development corporation which could be funded by the imposition of a local sales and use tax. The revenues collected from this sales tax were to be dedicated to economic development and the voters had to approve this new tax to be used for economic development, at an election. By statute, the proceeds of Section 4A sales tax are dedicated to economic development primarily to promote new and expanded industrial and manufacturing activities. Section 4A is available to cities that were located within a county of fewer than 500,000; "or the city has a population of fewer than 50,000 and is located within two or more counties, one of which is Bexar, Dallas, El Paso, Harris, Hidalgo, Tarrant, or Travis; or the city has a population of less than 50,000 and is within the San Antonio or Dallas Rapid Transit Authority territorial limits but has not elected to become part of the transit authority", (2008 Economic Development Laws for Texas Cities, Handbook of Economic Development, Office of the Attorney General of Texas, Austin, Texas) and had room within the local sales tax cap to adopt an additional one-half cent sales tax. Since then 115 cities have taken advantage of the provisions of Section 4A.

The legislature authorized a new type of sales tax in 1991, a Section 4B sales tax. This legislation authorized a one-half cent sales tax to be used to promote a wide range of civic and commercial projects. Section 4B sales tax

was so popular because it provided lots of flexibility in the usage of funds, that the Texas Legislature in 1993 broadened its availability to any city that was eligible to adopt a Section 4A sales tax, if after the adoption of Section 4A sales tax, the sales tax would be less than or equal to two (2) percent. This meant that cities could adopt either the Section 4A or the Section 4B tax in a county of less than 500,000 if they had room in their local sales tax.

Per the Economic Development Handbook, 2008 published by Attorney General's office, over 558 cities have levied an economic development sales tax. Out of 558 cities, 104 cities have passed both Section 4A and 4B, 339 cities have approved Section 4B and the remaining have passed just Section 4A. Additional sales tax revenue in excess of $376 million dollars annually, dedicated to the promotion of local economic development has been raised by these cities. In 2007, the Legislature authorized the re-codification of several civil statue provisions including Sections 4A and 4B. Effective April 1, 2009, the economic development corporations adopting Sections 4A and 4B will be known as Type A or Type B corporations.

3.3 Goals of Economic Development Corporations

Cities that collect the ED tax must establish an economic development corporation that is responsible for managing the funds and projects undertaken. When the city receives sales tax revenue from the state comptroller's office, it transfers the ED tax revenue to the corporation. The board of the directors of the corporation, appointed by the city council, decides for which purposes to use the

funds. According to Economic Development Handbook published by the Attorney General's Office (2008), *"the ordinance or resolution must state what purposes the corporation can further on the city's behalf. The purposes shall be limited to the promotion and development of industrial and manufacturing enterprises to encourage employment and the public welfare"*. In addition to the city maintaining oversight authority, the Texas Office of the State Comptroller requires the economic development corporation to submit an annual report of its activities. The city must approve the corporation's articles of incorporation by ordinance or resolution. During the 1997 Legislative Session, the Texas Legislature added Section 4C of the Development Corporation Act. This requires both Section 4A and Section 4B economic development corporations to submit an annual, one-page report to the State Comptroller's Office (Economic Development Handbook 2008, Attorney General of Texas, Austin, Texas, p. 35 The following items must be included in the report:

- Primary Economic Development Objectives
- Total Revenues for the Preceding Fiscal Year Statement
- Total Expenditures of the Preceding Fiscal Year Statement and by following categories
  - Administration
  - Personnel
  - Marketing or Promotion
  - Direct Business Incentives
  - Job Training
  - Debt Service
  - Capital Costs
  - Affordable Housing
  - Payments to Taxing Units, including School Districts
- List of the corporation's capital assets, including land and buildings

Respondents can include from one to five objectives; Job Creation or Retention, Infrastructure Improvement, Sports and Recreation Facilities, Tourism, and Other. The latest report available from Comptroller's office provides the frequency of objectives. These are summarized in Table 3.4. As expected, the objective of job creation or job retention is the most cited objective followed by infrastructure projects. Some cities adopted both Section 4A and Section 4B. More cities adopt Section 4B than 4A because of the flexibility this section allows in the usage of funds.

Table 3.4 Objectives of Cities' Economic Development Corporations

Job Retention or Creation	Tourism	Sports & Recreation Facilities	Infrastructure Projects	Others
97	25	51	75	29
Source: Texas Comptroller of Public Accounts Economic Development Corporation Report: Fiscal Years 2008 and 2009				

3.4 Differences in the Authorized Uses of the Tax Proceeds

Type A tax is generally considered more restrictive of the two taxes in terms of authorized types of expenditures. The types of projects permitted under Section 4A include the more traditional types of economic development initiatives that facilitate manufacturing and industrial activity. The Section 4A sales tax may also fund business-related airports, ports and industrial facilities, research-related facilities, and certain airport-related facilities 25 miles from an international border, as well as eligible job training classes, certain career centers and certain

infrastructure improvements which promote or develop new or expanded business enterprises. The statue also allows a 4A corporation to undertake most 4B-type projects without having to change from a 4A corporation to a 4B corporation.

A 4B sales tax allows greater flexibility in expending revenues. Generally, allowable 4B expenditures include not only those available under 4A, but also projects that contribute to the quality of life in the improvements of facilities community, such as park-related facilities, professional and amateur sports and athletic facilities, tourism and entertainment facilities, affordable housing or other improvements or facilities that promote new or expanded business enterprises that create or retain primary jobs.

Over the years, the line between the Sections 4A and 4B has become blurred. While it all started to promote new and expanded industrial and manufacturing activities to create jobs, now it appears almost any activity is covered under these two Sections. Texas Rangers, a Major Baseball Team, from Arlington, Texas and Dallas Cowboys, a National Football League team from Dallas, TX recently built baseball ballpark and football stadium in Arlington, TX using provisions of Sections 4B.

Examples of the projects that create jobs include manufacturing and industrial facilities, research and development facilities, military facilities, primary job training facilities for use by institutions of higher education, etc.

This long list of projects has resulted in oversight problems. Dallas Business Journal (October 2002) has cited several instances where it appears that funds from these Sections were used although the projects were not covered by either of the two Sections. Examples published include ambulances, fire trucks and government buildings in West Texas, private home for a company executive in Longview, etc. Consequently, certain lawmakers including former-State Representative Bill Ratliff with the support of Lt. Governor, have considered in the past to scrap these Sections. But their efforts to scrap or revamp the economic-development portions of the state sales tax, have not been successful.

On the contrary, in 2005, Texas lawmakers passed legislation (HB 2928) reinserting the language that was eliminated in 2003. At that time, HB2912 eliminated loopholes in the Development Corporation Act of 1979 that enabled Texas communities to use 4A and 4B tax revenues in ways never envisioned, such as building fire stations and city halls. HB 2928 grants small, rural communities additional flexibility to attract retail development.

Section 4A and 4B can be adopted if the citizens vote for the increase in sales tax for economic development projects. In order to encourage the citizens to vote for this sales tax increase, municipalities propose a reduction in property tax which makes the sales tax increase more palatable.

CHAPTER 4

HYPOTHESIS, DATA AND METHODOLOGY

4.1 Purpose and Methodology of Research

The purpose of this study is to determine if the cities using Sections 4A and/or 4B of Texas Development Corporation Act did better than those not using these provisions. This is done by collecting data of Texas cities whose population was at least 10,000 in year 2000 per US Census Bureau. The data is collected for 1990, 2000 and 2007. Year 2007 is selected instead of 2010 to avoid the impact of recession that began right at the end of 2007. Some cities in the study have population of less than 10,000 in 1990 but are included in the study if the population in 2000 was at least 10,000. Six cities, namely Austin, Dallas, El Paso, Fort Worth, Houston and San Antonio are excluded as these cities are not eligible to collect ED tax because of size limitations in the legislation. The total sample size of the study has 180 cities of varying size, geographic location and age. Appendix 2 lists the cities along with their population in 2000. The purpose of the study is to determine if cities using 4A/4B did better than the cities not using these provisions. Doing better means that the cities are not only growing both in population and employment

but are also adding to the quality of life for its citizens. One of the measures used in the literature to measure the improvement in the quality of life is median household income. A new business in a city may have plenty of jobs providing low level wages that may result in employment growth but not median income growth. This scenario does not add to the quality of life.

According to Weissbourd, Ventures and Berry (2004), “the common measure of an urban area’s success has been its population growth. Population growth was a good measure of success and economic prosperity”. In a study done by Glaeser, Scheinkman and Shleifer (1995), it was found that income and population growth were both good indicators of the economic growth. What was true in the study done by Glaeser et al, for the period 1960 -1990 is no longer true.

The recent data shows that the positive correlation between population growth and income broke down in late 1980s and 1990s. This supports my reasoning that considered alone, the population growth or employment growth do not indicate that the quality of life is getting better. Change in median household income provides the information if the city is doing better as a result of economic development policies. This argument is also supported by the latest census numbers that show the changing demographics in the lone star state. Although one cannot generalize, it is reasonable to assume that the new arrivals (legally or illegally) from Latin American countries lack language skills, education, communication skills, and

are ill-equipped to contribute in any meaningful way to the city's economy. They may get employment but the income they earn is not going to improve the quality of life of the city population taken as a whole.

Commonly used variables in the literature to measure the effectiveness of economic development actions are change in income, change in employment, and change in population. This study uses these variables to determine the impact of 4A/4B. Change in employment has been used among others by Agostini (2007), Alm & Rogers (2010), Bartik (1994), Billings (2009), Boarnet (2001), Buss (2001); Carroll & Wasylenko (1994), Elvery (2009), Faulk (2002), Hanson & Rohlin (2011), Leichenko (2001), Limi (2005), Mark et al.(2000), O'Keefe (2004), Owyang et al. (2008), Partridge et al. (2009), Shaffer & Collender (2009), Wasylenko & McGuire (1985), and Weissbourd & Ventures (2004). Change in income has been used among others by Alm & Rogers (2010), Agostini (2007), Shaffer and Collender (2009) and Weissbourd & Ventures (2004). Both of these variables are good and practical measures of economic development. Many economic development programs are initiated to bring jobs to the location. But imposition of tax to promote employment growth, though popular among elected officials, does not necessarily improve quality of life if the jobs are minimum wage paying jobs.

Economists recognize that economic growth differs from economic development. High skilled jobs that generate greater local household income

are much more desirable than low skilled jobs. Job growth that results in jobs requiring a mix level of skills and pay accordingly is preferable than a job growth just for the sake of job growth, without regard to the quality of the occupations. Therefore, to foster long term economic development, it is imperative that the employment growth provides a mixture of jobs. As stated in chapter 1, if people have jobs, they will have income to spend. If it is a good mix of jobs, that is; not just minimum wage jobs, people will be able to afford necessities of comfortable life. This will result in more income for local businesses and for the city from increased tax to the treasury. So employment and income are very crucial to measure the success of economic development initiatives

4.2 Hypothesis

The overarching research hypothesis is that adoption of economic development Sections 4A/4B has no impact on economic growth as measured by change in employment and change in average household income controlling for other factors that affect economic growth.

4.3 Data and Methodology

The most frequent reason for economic development used by the elected officials is expected growth in jobs. Therefore, one of the statistical models used to test the hypothesis will use change in employment as the dependent variable (DV) to determine the impact of Sections 4A/4B on economic

development. This model in this research is named *Employment Change Model.* However, increase in jobs does not necessarily mean the standard of living is increasing because jobs levels vary from those that pay minimum wage and do not require any special skill set to those that are technical in nature and pay reasonably high salaries. Hence, the effect of 4A/4B is also tested on household income change. This model in this research is named *Household Income Change Model.*

Before describing the models, let us first address briefly the type and period of the data. This study uses the panel data method. A panel data set is a data set over some factors such as population, income, employment, economic development tax, etc. collected at a point in time and then repeating the collection of data on the same subjects (in this case cities) for the same factors at a different point or points in time. This data collected for this study is from years 1990, 2000, and 2007. The year 2007 was selected instead of 2010 to avoid the impact of recession that began around that period. The nation and the State of Texas experienced historical growth during the 1990s that continued in the next decade with very slight interruptions. According to National Bureau of Economic Research (NBER)'s Business Cycle Dating Committee a peak in business activity occurred in the U.S. economy in March 2001. A peak marks the end of an expansion and the beginning of a recession. The expansion lasted exactly 10 years, the longest in the NBER's chronology. There was a brief period of recession and NBER's

committee determined in December 2007 that the expansion that began in November 2001 lasted 73 months.

Three sets of time periods will be used to run Employment Change Models but the Income Change Model will be over the decade of 1990-2000 because the independent variables like families below the level of poverty, number of high school or college graduates, and the number of people owning homes, data is available only every ten years. The three sets of periods are 1990 to 2000, 2000 to 2007 and 1990 to 2007. These periods will be identified by subscript j on the variables. For example change in the city population during 1990 and 2000, will be denoted by $DELCITPOP_1$ change in county employment during 1990 - 2007 will be denoted by $DELCNTYEMP_3$.

The first time period had relatively good economic growth, followed by a period that had a brief recession. But period of 2000 to 2007 started showing a downward trend towards the end and that is why this research did not go beyond 2007. The model will be run for the entire period of 1990 to 2007 to determine if the longevity of economic development revenues had any impact on jobs and income. It is assumed that the employment change as well as income change will show better results, if the city used the funds from Sections 4A/4B for a longer period. Predictor variable MONTHS which is the number of months, the revenue is collected, will be used to capture the length of the period.

4.4 Sources of Data

The data was primarily collected from Texas State Data Center (TSDC), Window on State Government, Texas Comptroller of Public Accounts Office, Attorney General's Office of the State of Texas and from US Census Bureau. US Census Bureau that conducts census every decade is the prime source of data for population. The Texas State Data Center (TSDC) and Office of the State Demographer which functions as a focal point for the distribution of Census, is another important source for demographic, economic, and social statistics for the Texas cities, from where the data for the study has been extracted. The link for this source is (http://txsdc.utsa.edu/About/Index.aspx). TSDC was initiated in 1980 to establish a state level liaison to the U. S. Bureau of the Census for better dissemination of Texas census and related data. TSDC is used for cities and counties population, employment, median household income, families below poverty levels, number and percent of persons 25 years of age or older who are high school or college graduates and number of households who own homes.

Only civilian employment is considered from TSDC's Table 16: Employment Status of the Population 16 years of Age and Older for the State of Texas a Numeric and Percent Change, that provides total labor force divided into civilian labor force and armed forces. Civilian labor force is further divided into employed and unemployed. Detailed data by city and county for years 1990 and 2000 was available from US Census Bureau and TSDC.

However, for the year 2007, the data for smaller cities was not easily available.

Factsheets from American Community Survey and Texas Workforce Commission online data, were used to fill in most of the blanks and the remaining are based on the estimates for years 2005 to 2007 published by TSDC. These estimates were compared by taking the rate of change between 2000 and 2010 and in most cases were determined to be reasonable estimates. Economic Development (ED) Sales Tax 4A/4B and other ED Tax data was collected from Texas Comptroller of Public Accounts website (http://www.window.state.tx.us/) which provides sales and use tax along with its components, date the tax started or changed. Sections 4A/4B ED rates and Other ED rates are listed by city. This website (https://ourcpa.cpa.state.tx.us/taxrates/RateHistResults.jsp) provides by city Sales Tax Rate History along with effective dates and rates by each category. . Texas Comptroller's office also provided the same information but their records did not go to 1990.

Attorney General's Office publishes information on Economic Development in Texas. This describes the details regarding how to start, what uses, and lists the cities that have adopted the Sections 4A and 4B sales tax for economic development.

4.5 Employment Change Model (1990-2000)

The dependent variable in this model is the change in city employment, $DELCITEMP_j$ where j varies from 1 to 3 for each of the three periods stated earlier. This captures a decade long (1990-2000) and 2000-2007, change in employment in Texas cities. It is possible for a city to have gained and lost employment during the decade or the period between 1990 and 2007. This study will not capture those intra-decade trends. The statistical model regresses $DELCITEMP_j$ on the independent variables that measure the amount of Section 4A/4B tax revenue collected by the city and other control variables. The city employment growth can be operationalized by change in the employment. The change in employment can be computed in two ways. One is the absolute population difference ($P_1 – P_2$) between two data points, say 1990 and 2000. The other is percentage change [$((P_1 – P_2) * 100)/P_1$] in population.

A comparison of means shown previously in Table 3.2 revealed a significant difference in the city employment levels between the cities that adopted the Section 4A/4B tax and those that did not. Cities that adopted the tax had significantly fewer jobs than their non-adopting counterparts. Adopting cities' 1990 mean employment was 14,418 and the mean for non-adopting cities was 17,956. This pattern holds out for 1990, 2000 and 2007.

Table 3.2 Mean of Employment of ED Adopting vs. non-Adopting Cities

	1990 - 2000		2000 - 2007		1990 - 2007	
Description	Count[1]	Mean	Count	Mean	Count	Mean
Cities not adopting ED	66	17,956	51	23,019	51	26,945
Cities which adopted ED	114	14,418	129	17,666	129	21,939
Mean of all 180 cities		15,715		19,183		23,357

Count[1] is at the end of the period

However, the figures show that the difference between the means increased between those adopted versus those not adopting from 1990 to 2007. The difference in the means of employment in 2000 - 2007 period, for the cities not adopting versus the adopting cities is 5,353 (23,019 – 17,666) which is approximately one and half times the difference in the means of employment in 1990-2000 period, for the cities not adopting versus the adopting cities 3,538 (17,956 – 14, 418). This indirectly is indicative that Section 4A/4B policies are not contributing to employment growth.

This introduced the potential of bias if percent change in employment was the regressand. Cities with small employment levels in 1990 could experience exceptionally large percentage growth simply because of the small base from which the percent change is calculated. Small cities exhibit comparable sized percent growth as larger cities simply because they have significantly smaller base. For example, the percentage employment increases for the city of Frisco

and Flower Mound during the decade 1990-2000 are 465.8 and 218.16 respectively. During the same period, the City of Arlington had a growth of 20% in employment (from 146,327 to 175,452). The population of Frisco increased from 6,138 in 1990 to 94,595 in 2007.

One-way ANOVA (Hawkins & Weber, 1980) indicated no relationship between the percent growth of employment and the adoption of economic development sales tax ($F=0.104$, $p=0.747$). Alternatively, one-way ANOVA rejected the null hypothesis of no relationship between absolute employment growth and the adoption of economic development tax ($F= 1.422$, $p =0.235$). Based on these empirical results and the inclusion of city population and city employment as control variables, the absolute growth of city employment was chosen to operationalize employment growth.

4.6 Variables and Their Significance

The amount of tax revenue collected by the city (EDTAXREVj) is measured by the average amount collected based on the number of months the city collected the tax. Only the number of months cities collect the tax is used because not all cities collected the tax the same number of months.

An aggregate measure may reflect two cities collecting the same amount and hide the fact that one city has collected revenue over a number of years at a low rate and the other city has collected the revenue over a shorter period but at a relatively higher rate. A monthly average, based on the number of months the

city collected the tax, differentiates those cities. Because the effects of the city spending tax revenue on economic development may be lagged, the length of time the city collects the tax is important. A city that collects the tax for six years will more likely see results than the city that collects the tax for one year. Many projects may not be complete within a year and may not produce benefits until the third or fourth years.

We control for the length of time the city collects the 4A/4B tax by including the number of months ($MONTHS_j$) a city has collected as a control variable. It is expected that the cities with more months of collection, ceteris paribus, will experience greater economic growth than those cities that do not collect the tax or collect it for a shorter time. All financial values were converted to 2000 dollars before the monthly averages were calculated. Producer Price Index from Global Insights was used to determine the factors. Similarly, all household incomes were converted to 2000 dollars. The year 2000 was chosen as a base because the data in the study spans over 1990 to 2007 and it seemed more appropriate to use 2000.

The amount of Section 4A/4B tax revenue is collected from information from the Office of the Texas State Comptroller. The Office of the Comptroller publishes total sales and use tax revenue by month for each city. The office also provides historical data for sales and use tax for each city and the various components of the total sales tax rate. For example, one can determine, of a 2 percent total local sales and use tax rate, that 1 percentage point is the base

rate, ½ of a percentage point is Section 4A/4B and that ½ of a percentage point is for property tax relief. In addition, the start date and the end date of each component are reported. Given an amount of sales tax revenue, the amount of the economic development sales tax is calculated as the percent of the total revenue equal to the percent of the total local rate comprised of the ED sales tax. In the hypothetical city above, the Section 4A/4B tax rate is approximately 25 percent of the total rate and the Section 4A/4B tax generated about 25 percent of the total local sales and use tax revenue.

Cities pursue local economic development in a number of ways. Some of the other financial methods besides Section 4A/4B taxes, include abating property tax liability within an enterprise zone or a Freeport zone and redirecting property tax revenue by virtue of tax increment finance agreements, Cities can implement these agreements while contemporaneously collecting the economic development sales tax. It is necessary to separate, as much as possible, the effect of these economic development policies from the effect of the Section 4A/4B sales tax. Texas cities are required to report annually to the State Comptroller the amount of tax revenue they forego or redirect attributable to these types of financial agreements. We computed the constant dollar average of this foregone revenue, by policy type and aggregate and included it in the model as a measure of other economic efforts by the cities. These measures admittedly do not capture non-financial efforts or non reported efforts of cities. They do,

however, provide a reasonable approximation of overall effort of other economic development programs.

The 1990 population of the city (CITPOP90), the change in city population during the decade ($DELCITPOP_j$), the size of the county employment in 1990 (CNTYEMP90) and the change in county employment between 1990 and 2000 ($DELCNTYEMPNET_j$) all contribute to capture the urbanization and localization economies affecting the city economy. The change in the county employment is net of the change in city employment to avoid the influence of the growth of city employment on county employment growth. This is expected to be the case where the city in the study is the overwhelming largest city in the county. The growth of the city employment more likely affects the entire county employment rather than vice versa. An example of this situation is Lubbock. Lubbock city employment is 95,035 in 2000; 83 percent of Lubbock County employment of 114,711. County employment operationalizes urbanization economies and city population operationalizes localization economies.

The example of Lubbock demonstrates how a single central city can dominate the economy of an entire county, or even adjacent counties. Not all central cities may be so dominate.

A phenomenon in urban economies is the decentralization of people and jobs. Central cities have consistently lost population and employment relative to the metropolitan area as a whole since the middle of twentieth century. Robin M.

Leichenko (2000) investigates the broad-based trends of urban change in the United States between 1970 and 1997. However, this trend of decentralization continued through the beginning of the 21st century and continues today. One consequence is that central cities either loose employment relative to other cities, or worse, experience an absolute decline in population and employment as people and businesses move to suburbia and exurbia.

The results of his study suggest that suburban and city growth are interrelated but the nature of interrelationship varies over time. Interestingly, his results indicate that population and employment growth in cities tend to be jointly determined. His model takes into account this potential source of simultaneity by using simultaneous equation model where in change in population is an independent variable in one equation and dependent variable in another equation. In this study, the change in population, change in employment and change in median household income are used but without simultaneity. In this study, we capture the trend of jobs and people leaving the central city during the 1990s and beyond by using a dummy variable CENTRAL. It is expected that job growth in central cities will be less than the job growth in other cities. Average Job Growth in 24 Central Cities is 12.7 and 15.7 for 1990-2000 and 2000-2007 respectively, compared to other cities job growth of 26.3% and 24.2% for the same two time periods.

As mentioned above, metropolitan areas are defined as Metropolitan Statistical Areas (MSA) and are not equal. In addition, cities in rural counties are

not part of an MSA. Large MSAs contain a wider variety of goods and services than smaller MSAs and rural counties. Direct international flights are not available in every MSA. Smaller MSAs may be regional hubs of economic activity but may specialize in agriculture or timber industries. Large MSAs are statewide or international hubs and hence are affected by different factors than smaller MSAs. At the same time, because of their heterogeneous economies, large MSAs can weather economic changes better than the small MSAs or rural counties.

Two dummy variables, SMMETRO and RURAL, are equal to one for a city in a small MSA or rural county and zero otherwise. Cities in counties of small metropolitan areas or rural counties are expected to grow slower than cities in counties of large metropolitan areas. The large metropolitan areas were defined to be Austin MSA, Dallas-Fort Worth MSA, El Paso MSA, Houston MSA and San Antonio MSA.

Finally, different regions of the state may experience different economic fortunes. The more urbanized regions of the state are more populated, more diversified and more capable to adjust to changes in the state and national economies. The model includes a dummy variable (SMLREG) that equals one if the city is in a small economic region or the state and 0 otherwise. It is to capture the differences in growth between the large regions of the state and the smaller regions. Less than half of the cities, 47 percent, are located in large economic regions. The State of Texas is divided into twelve economic regions. These are

listed in Appendix 3. The large regions are determined to be the Alamo region (San Antonio), the Capital region (Austin), the Gulf Coast region (Houston), and the Metroplex region (Dallas/Fort Worth). Of the counties in the study, total 2000 county population is 11.0 million for large region counties. Aggregate county population for small region counties is 5.7 million. Over two-thirds of the population resides in the four large regions. It is expected, given the greater variety of activities, markets, and inputs, that the cities in the larger regions will experience more growth and development than comparable cities in correspondingly smaller regions of the state.

4.7 Descriptive Statistics

Table 4.1 contains the descriptive statistics of the dependent variable, the independent variables and control variables for cities. Overall city employment increases, on average, by nearly 4900 jobs during 1990s and 8478 jobs during 1990-2007, with some cities losing jobs. The 1990 mean city population is slightly more than 34,000 and 49,000 in 2007.

Table 4.1 Descriptive Statistics

Variable Descriptions	Count	Minimum	Maximum	Mean	Std. Dev.
City Population 1990	180	3,944	261,721	34,422	41,342
City Population 2000	180	10,302	332,969	42,308	49,556
City Population 2007	180	9,942	359,365	49,179	55211
City Employment 1990	180	2,195	146,327	15,715	20,438
City Employment 2000	180	2,740	175452	19183	23997
City Employment 2007	180	4,503	188480	23357	26907
City Household Income 1990	180	12,908	77,530	29,408	11,841
City Household Income 2000	180	21,180	131,549	43,553	20,229
City Household Income 2007	180	23,710	180,551	51,247	26,263
ED Tax Normalized 90-00	180	-	$2,655,257	$230,814	$317,708
OED Tax Norm'lizd 90-00	180	-	$1,467,626	$214,638	$290,022

The next chapter 5 discusses the OLS estimates of regressing the statistical models and their results.

CHAPTER 5

ANALYSIS OF REGRESSION MODELS AND RESULTS

5.1 Basic Form of Models

In this chapter, all the models for Employment Change and Income Change will be run using SPSS. As explained in the chapter, these models we will also run these models using Wooldridge Fixed Effects Model. Based on previous chapter's discussion, the Change in city Employment model will have the following variables as shown in the following DV = f (IV) equation.

$$DELCITEMP_j = \beta_0 + \beta_1 * EDTAXREV_j + \beta_2 * MONTHS_j + \beta_3 * OTHEREV_j + \beta_4 * CITPOP90 + \beta_5 * DELCITPOP_j + \beta_6 * CNTYEMP90 + \beta_7 * DELCNTYEMPNET_j + \beta_8 * SMMETRO + \beta_9 * RURAL + \beta_{10} * SMLREG + \beta_{11} * CENTRAL$$

The variables have been explained in the previous chapter and β_j are the coefficients which will be determined by the OLS regression tool. The first model is for the dependent variable change in city employment between 1990 and 2000 ($DELCITEMP_1$). The independent variables are economic development policies variables $EDTAXREV_1$ per month, the number of months ($MONTHS_{1)}$ the

revenue is collected and the other ED revenues ($OEDREV_1$). The literature review indicated that the change in employment and change in population move together. Therefore, $DELCITPOP_1$ has been included as the independent variable along with the initial city population. Since the city employment is affected by agglomeration economics of the county as a whole, county employment and net change in county employment have been included as independent variables. The economic nature of the city, as to whether it is a central city or in a rural county along with the economic region (small or large), have been included as control variables. The purpose is to determine the effect on change in employment as a result of economic development policies by including the variables that could have impact on the outcome.

The first employment change model is for the period 1990 to 2000.

5.2 Employment Change Models

Regression Results and Analysis

The results of regression of the first model are shown in Table 5.1.

Table 5.1 Dependent Variable $DELCITEMP_1$, Change in City Employment between 1990-2000

Model Summary				
Model	R	R^2	Adjusted R- Squared	Std. Error of the Estimate
	0.975	0.950	0.947	1310.138

ANOVA (Analysis of Variance)					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	5.508E09	11	5.008E08	291.74	0.00
Residual	2.884E08	168	1716461.680		
Total	5.797E09	179			

Coefficients					
Model Dependent Variable: $DELCITEMP_1$	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	515.205	283.686		1.816	.071
EDTAXREV	0.001	0.001	.016	0.684	0.495
MONTHS	-3.791	2.541	-0.030	-1.492	0.138
OTHERED	1.595E-05	0.000	0.043	2.026	0.044
CITPOP90	-0.015	0.004	-0.108	-3.579	0.000
$DELCITPOP_1$	0.467	0.012	1.003	40.453	0.000
CNTYEMP90	-0.002	0.001	-0.127	-3.227	0.002
$DELCNTYEMPNET_1$	0.009	0.005	0.076	1.846	0.067
CENTRAL	-3.019	406.687	0.000	-0.007	0.994
SMMETRO	487.415	233.473	0.041	2.088	0.038
RURAL	225.878	258.973	0.017	0.872	0.384
SMREG	-594.128	260.344	-0.052	-2.282	0.024

The results of the regression show that the model is robust in explaining the variation of change in employment by the selected independent variables. This is computed by R^2 which in this case is 94.7%. Most of the variation of this model is explained by change in city population DELCITPOP which has a

coefficient of .467 and t value of 40. 453. This means that a change of 1000 in population adds 467 jobs. However, the analysis of the results of the rest of the model independent variables, reveal unexpected results. The coefficients of beginning city population (CITPOP90) is negative which theoretically will mean, *ceteris paribus*, if original population is 1000 more, it will result in employment to go down by 15 people. It does not make sense. Same is the case for initial county employment. ED sales tax revenue has a coefficient not significantly different from zero as indicated by computed t-value of 0.684. It means ED tax revenue had no impact on the growth of employment. Therefore, one can conclude that at an α value of 5%, ED and Other ED have no contribution in explaining variation in change in employment over the decade of 1990 to 2000. Earlier we showed in Tables 3.1 and 3.2 that those cities that adopted Sections 4A/4B had less population and less employment than the cities that did not implement the ED sales tax. But that was expected because the intent of the legislation was to give a means or opportunity for small cities for economic development. However, the data over the decade (1990-2000) shows that economic development policy did not produce the desired result. Table 5.2 shows the difference means in population, employment and income growth between adopting and non-adopting cities. Non-adopting cities grew in all three areas far better than the adopting cities.

Table 5.2 Comparison of Means for Change in City Population, Employment & Income between Adopting and non-Adopting Cities During 1990 and 2000

		Δ CITY POPULATION	Δ CITY EMPLOYMENT	Δ CITY INCOME
No	Mean	9,541	4,272	5,662
	N	66	66	66
YES	Mean	7,201	3,223	4,862
	N	114	114	114
TOTAL	Mean	8,059	3,608	5,155

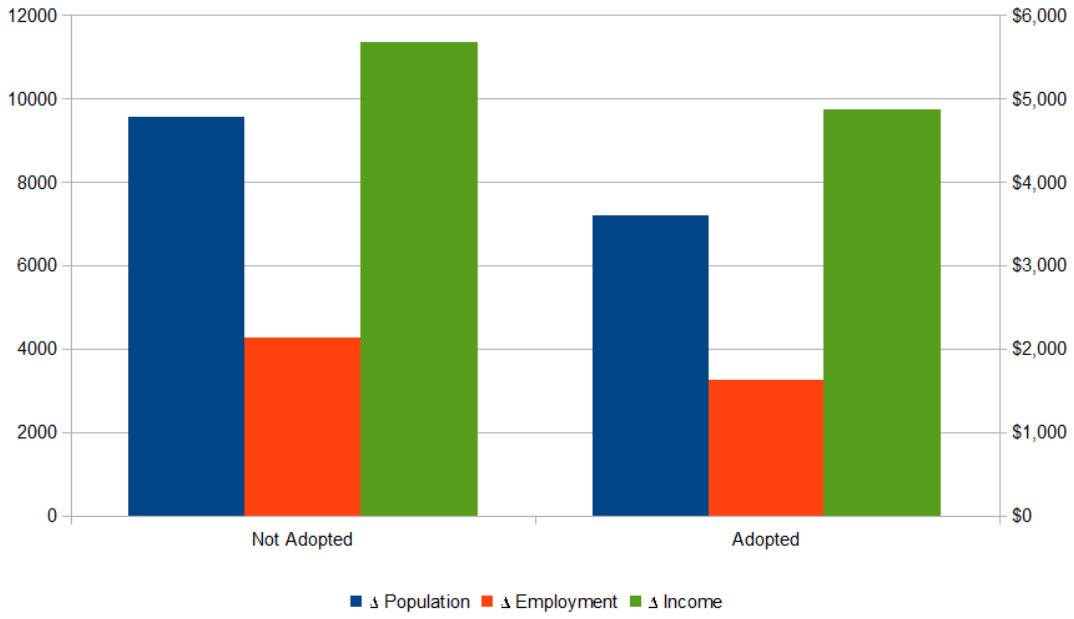

Figure 5.1 Mean Growth 1990 - 2000

It is also interesting to note that the mean of employment and population ratio of adopting and non adopting cities over the decade did not change. It stayed 44% for adopting and not adopting cities. These initial observations support the hypothesis of this research that economic development policies as envisioned in the legislation of Sections 4A and 4B have no significant impact on employment growth. The rate at which the cities have been adopting the sales tax economic development policies has been dropping since 1998 when 11 cities adopted either of the two Sections. Since then it has trickled down to 2 cities in years 2003 to 2007, the last year of this study (Figure 5.2). May be these ED policies are not yielding the intended results of economic growth and city officials have lost interest in going to the voters.

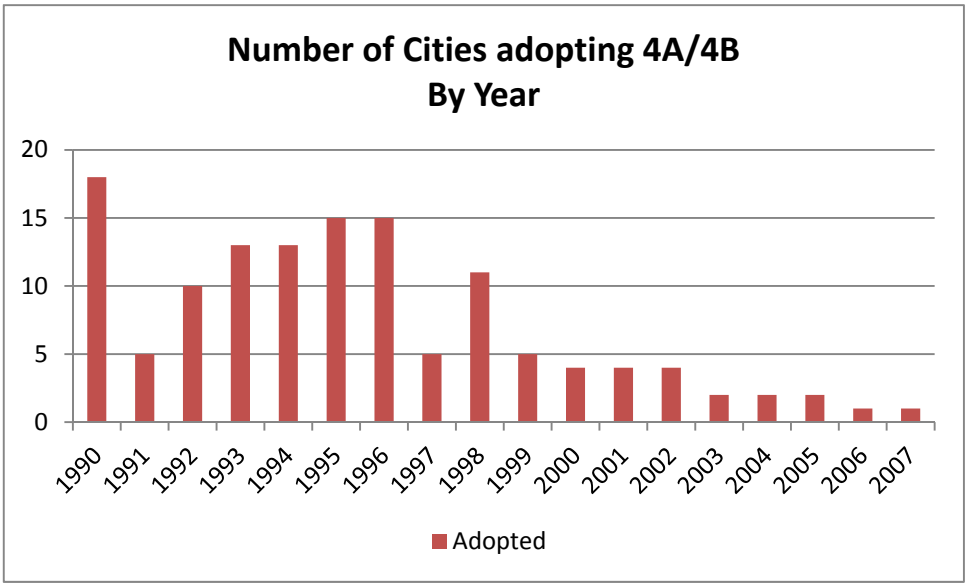

Figure 5.2 Adoption Rate

Although the model overall has good predictability with F=291.74 and R^2 of 0.95, the negative coefficients of some independent variables do not make sense.

5.3 Wooldridge Fixed Effects Model

Wooldridge (2006) describes a similar situation. He had two years of data for cities across USA and using one year data got a model that showed that crime rate goes down when unemployment increased. Obviously, it is not expected. Therefore, the model needed some changes. His theory was that the model needs more variables like efforts of police force to combat crime, demographics of the population such as age distribution, gender distribution, education levels, etc. But many of the above factors may be hard to control but relatively stay fixed in a city over a short duration of 5 to 10 years. He came up with an approach where by the factors affecting the dependent variable are divided into two groups, unobserved or fixed effects and observed effects. The factors such as age distribution, gender distribution, law enforcement efforts, which are difficult to control but are more or less fixed between two time periods of short duration, he called unobserved or fixed effects. These fixed effects are assumed to be constant overtime. Then the regression model can be written as

$$Y_{it} = \beta_0 + \delta_0 \, d2_t + \beta_1 \, x_{it} + a_i + u_{it}, \quad t = 1, 2$$

where in the notation Y_{it} , i denotes the city and t denotes the time period. The variable $d2_t$ is a dummy variable that equals zero when t =1 and one when t =2.

Intercept for t = 1 is β_0 and the intercept for t = 2 is $\beta_0 + \delta_0$. The variable a_i captures all unobserved, time-constant factors that affect Y_{it} .That is why it does not have subscript of time (t). Wooldridge suggests combing the data for two time periods in one model and creating first-differenced equation. Let us write the equations for t = 1 and t = 2.

$$Y_{i1} = \beta_0 + \beta_1 x_{i1} + a_i + u_{i1}, \quad t = 1 \qquad (1)$$

$$Y_{i2} = \beta_0 + \delta_0 + \beta_1 x_{i2} + a_i + u_{i2}, \quad t = 2 \qquad (2)$$

Subtracting the first equation from the second results in the following

$$Y_{i2} - Y_{i1} = \delta_0 + \beta_1 (x_{i2} - x_{i1}) + (u_{i2} - u_{i1})$$

The above equation is the change in the dependent variable and the independent variables or predictors are also shown as deltas. The intercept δ_0 is the change in the intercept between two time periods. I will use Wooldridge first-differenced equation to determine the change in employment over two periods of 1990 and 2000, ($DELCITEMP_1$) by subtracting out the fixed effect variables such as RURAL, CENTRAL, SMLREGN, and SMLMETRO. The character of the cities relative to these variables remained same over the decade.

$$DELCITEMP_1 = \delta_0 + \beta_1 * DELEDREV_1 + \beta_2 * DELOEDREV_1 + \beta_3 * DELCITPOP_1 + \beta_4 * DELCNTYEMPNET_1$$

SPSS produced the following Table 5.3 for this model. The results of this model confirm what was expected that the ED policies did not contribute in any significant way towards job growth and the change in city population explains most of the variation in the employment change. All other variables remaining same, an increase of 1000 population adds 456 jobs, supporting the economic theory that people go where jobs are.

Table 5.3 Dependent Variable $DELCITEMP_1$,Change in City Population between 1990 and 2000 Using Wooldridge Fixed Effects Model

Model Summary				
Model	R	R^2	Adjusted R- Squared	Std. Error of the Estimate
	0.968	0.936	0.935	1459.280

ANOVA (Analysis of Variance)					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	5.426E9	4	1.357E9	637.023	0.00
Residual	3.705E8	174	2129498.949		
Total	5.80E09	178			

Coefficients					
Model Dependent Variable: $DELCITEMP_1$	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-81.219	168.154		-0.483	.0630
$DELCITPOP_1$	0.457	0.010	0.983	46.457	0.000
$DELCNTYEMPNET_1$	-4.934E-5	0.002	0.000	-0.022	0.982
$DELEDTAX_1$	0.000	0.000	-0.048	-2.196	0.029
$DELOEDTAX_1$	0.000	0.000	0.040	1.967	0.051

From the above two Employment Change Models, the inference is that the city employment growth is not dependent in any significant way on Sections 4A or 4B economic development policies. Most of the change in jobs can be explained by the growth in the population. Thus one can preliminary accept the null hypothesis that ED has no impact on economic development. However, the reason for the ED policy variables coming at a negative or statistically insignificant levels could be that out of 180 observations, 66 are zero

because the cities chose not to adopt Section 4A or 4B. Such a large number of zeros in the observations, skews the distribution of the data.

5.4 ED Variables as Dummy Variables

To overcome the above potential problem of skewed distribution, both the ED policy variables are classified as dummy variables. If the city adopted ED policy, 1 was assigned to Section 4A/4B ED variable, otherwise 0. The new variable is denoted by ED_1 for 1990-2000 time period. Similarly, if the city was foregoing revenue due to other ED policies such as Freeport Exemptions, Tax Incremental Finance Agreements, property tax abatements; etc.; a dummy variable $OTHERED_1$ with a value of 1, otherwise 0 was used. Results of this regression model are shown in Table 5.4.

Table 5.4 $DELCITEMP_1$, Change in City Employment between 1990 -2000 w/ED Variables as Dummy Variables

Model Summary				
Model	R	R^2	Adjusted R- Squared	Std. Error of the Estimate
	0.974	0.949	0.945	1330.593

ANOVA (Analysis of Variance)					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	5.499E9	11	4.999E8	282.373	.000
Residual	2.974E8	168	1770478.069		
Total	5.797E9	179			

Coefficients					
Model Dependent Variable: DELCITEMP1	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	537.754	371.396		1.448	.150
ED_1	-60.876	341.224	-.005	-.178	.859
$OTHERED_1$	29.362	262.116	.002	.112	.911
$EDMNTH_1$	-2.171	3.727	-0.17	-.583	.561
$DELCITPOP_1$	.465	.012	1.000	39.278	.000
$DELCNTYEMPNET_1$	.008	.005	.076	1.815	.071
CITPOP90	-0.13	.004	-.091	-3.246	.001
CNTYEMP90	-.002	.001	-.130	-3.244	.001
RURAL	235.301	264.047	.018	.891	.374
SMMETRO	522.938	236.737	.044	2.209	.029
SMLEG	-633.557	268.199	-.055	-2.362	.019
CENTRAL	334.887	385.478	.020	.869	.386

The output of this model is no different than of Table 5.1 where ED variables are used as dollar amounts rather than dummy variables. Both ED policy variables are statistically insignificant. $DELCITPOP_1$ (Change in City

Population between 1990 and 2000) is the predominant predictor with a t- value of 39.278 and ceteris paribus, a change of 1000 in population adds 465 jobs. Other significant variables are CNTYEMP90 and CITPOP90. But both of these variables have negative coefficients which does not make sense. SMLREG is significant and has a coefficient of -633.557, meaning that if the city is in small economic region, it will result in the loss of 633 jobs. Overall, changing the ED policy variables did not change the outcome of this regression model. The inference with respect to the ED policy variables remains that these are not statistically significant.

5.5 Model for DELCITEMP with Normalized ED Variables

Since the predictor $DELCITPOP_j$ has been the driving factor in explaining the model, I normalized the ED policy variables by dividing the ED dollar values by CITPOP90 expressed in ('000). $DELCITPOP_j$ was also divided by CITPOP90 to get per capita transformation per 1000. The results of this model are shown in Table 5.5

Table 5.5 $DELCITEMP_1$, Change in City Employment between 1990 -2000 w/Normalized ED Variables

Model Summary				
Model	R	R^2	Adjusted R- Squared	Std. Error of the Estimate
	0.530	0.281	0.239	4965.063

ANOVA (Analysis of Variance)					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.631E9	10	1.631E8	6.614	.000
Residual	4.166E9	169	24651850.12		
Total	5.797E9	179			

Coefficients					
Model Dependent Variable: DELCITEMP1	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	2716.34	1151.853		2.358	.020
$EDMNTH_1$	-4.209	13.485	-.033	-.312	.755
$EDTAXNRMALIZD_1$	-7.374E-5	.002	-.004	-.035	.972
$OEDNORMALIZED_1$	.000	.001	.009	.120	.905
$DELCITPOPRATIO_1$	3758.39	931.492	.385	4.035	.000
$DELCNTYEMPNET_1$	.019	.018	.169	1.037	.301
CNTYEMP90	-.003	.002	-.178	-1.161	.247
RURAL	-1082.10	981.751	-.081	-1.102	.272
SMMETRO	1363.02	887.607	.114	1.536	.127
SMLREG	-2091.01	981.794	-.183	-2.13	.035
CENTRAL	2830.68	1253.565	.170	2.258	.025

Both the ED policy variables even after normalization remain statistically insignificant. The new transformed variable $DELCITPOPRATIO_1$

which is the original DELCITPOP divided by CITPOP90 is significant. If the ratio of change in population to initial population is 1, then the change in employment is expected to be about 3,760 jobs, *ceteris paribus*. If the city is located in a small economic region, it is expected that the jobs will decrease on the average by about 2,100 compared to cities in the large economic regions.

5.6 DELCITEMP Model w/ Dummy ED Variables and Normalized DELCITPOP

Next, a combination of the above two models was considered because in the model described in Table 5.5, the issue of 66 cities with zero values may have skewed the results. The next model is using ED policy variables as dummy variables as described earlier and the change in population variable $DELCITPOP_j$ will be transformed to per capita by dividing by CITPOP90. These results are in Table 5.6.

Table 5.6 $DELCITEMP_1$, Change in City Employment between 1990 -2000, w/Dummy ED Variables and Normalized DELCITPOP

Model Summary				
Model	R	R^2	Adjusted R-Squared	Std. Error of the Estimate
	0.558	0.312	0.271	4859.298

ANOVA (Analysis of Variance)					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.806E9	10	1.806E8	7.649	.000
Residual	3.991E9	169	23612776.97		
Total	5.797E9	179			

Coefficients					
Model Dependent Variable: DELCITEMP1	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	2019.384	1348.715		1.497	.136
$EDMNTH_1$	17.965	13.562	.141	1.325	.187
ED_1	-2583.006	1233.578	-.219	-2.094	.038
$OTHERED_1$	1723.003	949.535	.123	1.815	.071
$DELCITPOPRATIO_1$	3604.993	752.462	.369	4.791	.000
$DELCNTYEMPNET_1$	.016	.018	.146	.915	.361
CNTYEMP90	-.002	.002	-.144	-.959	.339
RURAL	-844.680	961.102	-.063	-.879	.381
SMMETRO	1470.113	870.664	.123	1.688	.093
SMLREG	-2268.134	970.861	-.198	-2.336	.021
CENTRAL	2690.685	1221.901	.161	2.202	.029

The output of this model is no different from the previous ones in the sense that the ED policy variable representing Section 4A/4B, although statistically significant has a negative coefficient, meaning that if the city has adopted the ED policy under these sections, it is expected to lose jobs, which

does not seem realistic. The OTHERED variable is statistically significant at α equal to 10% but not at α equal to 5%. Change in population divided by initial population, i.e., per capita change in population is statistically significant as was the case in previous models. This drives home the fact that population is the engine for the jobs which has been stated in the literature as well. It is expected that the cities in the small economic regions on the average will lose jobs compared to the cities in the large economic region which because of agglomeration economies generally do better than the cities in small regions.

Now, models for Income change model will be discussed. These models are specified to measure the impact of ED policies on quality of life. It is suspected from the Employment Change Model results that the adoption of these sections will have more likely than not, have no impact on income growth.

5.7 Income Change Models

In this model change in income will be regressed by using the independent variables of population growth divided by initial population ($DELCITPOPRATIO_1$), initial household median income (1990) escalated to 2000 (CITINC90ESC00), net county employment change ($DELCNTYEMPNET_1$), four fixed effects variables of rural, central, small or large economic region and small metro plus the quality of life variables of home ownership, college graduates, and level of poverty, all normalized to represent per capita change. The ED policy variables will be used as dummy variables as described earlier.

The results of this model are shown in Table 5.7. Both ED policy variables are statistically insignificant. As in the previous models, change in net county employment and per capita change in city population are significant statistically. Initial median household income is significant and the model predicts that for each $1,000 of initial income, one job will be added to the economy. Contribution of the quality variables change in the ratio of the number college graduates to the city population and change in the per capita poverty level are significant. The results of the model indicate that for each one point increase in COLGRADRATIOPOPCHNG, income is expected to increases by $126 and one point decrease in poverty levels adds $166 to income. The third quality of life predictor, the home ownership is significant but with a negative coefficient, which cannot be explained logically. The F value of the model is 27.014 which is significant and the model explains 67.8% of the variation

From the above results for the data for period 1990 to 2000, one can infer that the ED policies of Sections 4A/4B are not generating jobs or improving the quality of life. Other ED policy variable yielded inconsistent results.

Table 5.7 Dependent Variable $DELCITINC_1$, Change in Median Household Income between 1990-2000

Model Summary				
Model	R	R^2	Adjusted R-Squared	Std. Error of the Estimate
	0.824	0.679	0.654	4201.32877

ANOVA (Analysis of Variance)					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.199E09	13	4.768E08	27.014	0.00
Residual	2.930E09	166	17651163.44		
Total	9.129E09	179			

Coefficients					
Model Dependent Variable: $DELCITINC_1$	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-1314.425	1682.519		-.781	0.436
ED_1	-989.388	1075.959	-0.067	-.920	0.359
$EDMNTH_1$	4.633	11.789	0.029	.393	.695
$OTHERED_1$	-1277.023	825.643	-0.072	-1.547	0.124
$DELCITPOPRATIO_1$	2120.844	872.910	0.173	2.430	0.016
CITINC90ESC00	0.100	0.031	0.220	3.230	0.001
$DELCNTYEMPNET_1$	0.015	0.008	0.104	1.734	0.085
CENTRAL	238.996	1056.151	0.011	0.226	0.821
SMMETRO	-261.431	761.666	-0.017	-.343	0.732
RURAL	187.308	834.632	.011	.224	0.823
SMREG	-162.361	873.303	-.011	-0.186	0.853
$COLGRADRATIOPOPCHNG_1$	126.483	17.631	0.562	7.174	0.000
$POVRTYRATIOPOPCHNG_1$	-166.116	50.329	-.174	-3.301	0.001
$HOMEOWNRATIOPOPCHNG_1$	-68.086	20.556	-.168	-3.312	0.001

5.8 Employment Change Models Beyond 2000

Using the 1990 to 2000, Employment Change Models in Table 5.6, the models were run for 2000 to 2007 and 1990-2007 periods. The underlying rationale for regressing city employment change over the entire period is to explore the impact of longevity in the receipt of funds for ED. It will also capture lag effect in the receipt of funds and its usage.

Table 5.8 shows the results of the $DELCITEMP_2$ (Change in City Employment) for the period 2000-2007. The results are almost identical with the first period, that is, the insignificant at 95 percent confidence level. This inference is no different than what we have observed so far in the other models that the ED policies of Section 4A/4B are not generating employment growth. The statistically significant variables in this model are CENTRAL, $OTHERED_2$, and $DELCITPOPRATIO_2$ Per capita change in city population between 2000 -2007, shows that a ratio of one between change in population and beginning population adds 13,365 jobs. The fixed effect variable CENTRAL t-value is significant and the inference is that if the city is a central city, it will add 3709 more jobs than a non-central city which seems unrealistic. Contribution of OTHERED activities is significant at α equal to 10% but not at 5%. The model explains 51.4 % of the variation in change in employment and has a good F-value of 17.88. However, the inference so far is that Section 4A/4B ED policies are not effective in enhancing employment or quality of life.

Table 5.8 $DELCITEMP_2$, Change in City Employment between 2000-2007 w/Dummy ED Variables and Normalized $DELCITPOP_2$

Model Summary				
Model	R	R^2	Adjusted R-Squared	Std. Error of the Estimate
	0.717	0.514	0.485	4036.5643

ANOVA (Analysis of Variance)					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2.913E9	10	2.913E8	17.876	.000
Residual	2.754E9	169	16293851.85		
Total	5.666E9	179			

Coefficients					
Model Dependent Variable: $DELCITEMP_2$	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	693.547	1139.373		.609	.544
$EDMNTH_2$	-13.324	22.103	-.102	-.603	.547
ED_2	451.842	2096.269	.036	.216	.830
$OTHERED_2$	1323.994	725.036	.106	1.826	.070
$DELCITPOPRATIO_2$	13634.332	1183.445	.696	11.521	.000
$DELCNTYEMPNET_2$	-.001	.007	-.013	-.115	.909
CNTYEMP00	.001	.001	.054	.456	.649
RURAL	-536.169	811.208	-.040	-.661	.510
SMMETRO	-71.319	717.902	-.006	-.099	.921
SMLREG	281.076	808.204	.025	.348	.728
CENTRAL	3709.493	1008.741	.225	3.677	.000

5.9 Employment Model for 1990-2007

Table 5.9 is the model for the entire period of 1990-2007. The expectation in running this model was to see if the longer duration will have any different impact of ED policy variables on employment growth. This regression

model does not yield any different results that have been seen before. The longer period does not impact Section 4A/4B ED policy variables and these remain statistically insignificant in explaining variation in the employment growth. Other ED variable is statistically significant at α equal to 10% but not at 5%. Out of the four fixed effect variables CENTRAL is significant meaning that if the city is a central city in the county, *ceteris paribus*, it will add 5843 jobs, compared to non central cities.

Table 5.9 $DELCITEMP_3$, Change in City Employment between 2000-2007 w/Dummy ED Variables and Normalized $DELCITPOP_3$

Model Summary				
Model	R	R^2	Adjusted R-Squared	Std. Error of the Estimate
	0.599	0.359	0.321	8550.930

ANOVA (Analysis of Variance)					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	6.925E9	10	6.925E8	9.471	.000
Residual	1.236E10	169	73118397.93		
Total	1.92E10	179			

Coefficients					
Model Dependent Variable: $DELCITEMP_3$	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	5751.816	2512.131		2.290	.023
$EDMNTH_3$	11.545	16.523	.084	.699	.486
ED_3	-4017.168	2770.610	-.175	-1.450	.149
$OTHERED_3$	3054.355	1743.111	.116	1.752	.082
$DELCITPOPRATIO_3$	2936.009	461.645	.442	6.360	.000
$DELCNTYEMPNET_3$	.013	.011	.164	1.194	.234
CNTYEMP90	-.005	.004	-.199	-1.442	.151
RURAL	-2090.906	1694.690	-.085	1.234	.219
SMMETRO	1853.939	1525.137	.085	1.216	.226
SMLREG	-3819.225	1660.607	-.183	-2.300	.023
CENTRAL	5843.200	2146.389	.192	2.722	.007

5.10 Employment Change Model for Small Cities (Population <= 30,000)

The intent of the legislation regarding Sections 4A/4B was to help small Texas cities in their economic development efforts. Therefore, I decided to run the Employment Change Model for the decade 1990 to 2000 for cities which

had a population of less than or equal to 30,000 in 1990. The results are in Table 5.10

Table 5.10 Employment Change Model for CITPOP90 ≤ 30,000

Model	R	R^2	Adjusted R- Squared	Std. Error of the Estimate
	0.813	.661	0.631	2057.875

ANOVA (Analysis of Variance)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	9.478E8	10	94780818.91	22.381	.000
Residual	4.870E8	115	4234850.397		
Total	1.435E9	125			

Coefficients

Model Dependent Variable: $DELCITEMP_{30000}$	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	β	Std. Error	Beta		
Constant	690.551	618.051		1.117	.266
EDMNTH	9.633	7.132	.126	1.351	.179
ED_{30000}	-667.190	648.949	-.094	-1.028	.306
$OTHERED_{30000}$	569.915	443.564	.073	1.285	.201
$DELCITPOPRATIO_{30000}$	3619.850	339.265	.723	10.670	.000
$DELCNTYEMPNET_{30000}$	.006	.009	.089	.643	.521
CNTYEMP90	-.001	.001	-.092	-.696	.488
RURAL	115.165	441.420	.016	.261	.795
SMMETRO	36.919	479.236	.005	.077	.939
SMLREG	-996.573	464.757	-.144	-2.144	.034
CENTRAL	-267.311	2127.396	-.007	-.126	.900

The results of the Table 5.10 for CITPOP90 less than or equal to 30,000 are no different than the rest of the models. Both Section 4A/4B and Other ED policy variables are statistically insignificant. Other than the

DELCITPOPRATIO, which is a ratio of change in population divided by the original population, the only other predictor which is significant is SMLREG (small economic region). Its β-coefficient is negative (-996.573) meaning that if the city is in the small economic region, ceteris paribus, it will lose 996 jobs compared to the cities which are in large economic regions, which makes sense because the small economic regions do not enjoy the benefits of agglomeration economies.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

The above analysis leads the author to conclude that at the α value of 0.10 the hypothesis, that the cities in Texas that adopted Section 4A/4B did not do better in employment growth and income growth than the cities which chose not to adopt these economic development provisions, can be accepted. Various regression models run with data over a period of 1990 thru 2007 show that the economic development sales tax collected by the cities did not in any significant way impacted either the job growth or the income growth. Per capita change in population is found to be the largest explanatory variable for employment growth. The variable OTHER ED which encompasses economic development efforts through Tax Increment Finance Agreements, Freeport Zones, property tax relief, has been consistently significant at confidence level (1 –α) of 90% but not at 95%. The quality of life variables, change in the number of families below the poverty level and the change in the number of college graduates explained the change in income during 1990 and 2000. I chose 2007 as the ending point of this research to avoid the impact of recession that began around that time period.

The economic indicators data were hard to obtain. Yearly estimates of population, employment and income are published based on well established and acceptable methodologies. However, variables like high school graduates, college graduates, families below poverty level, housing units, etc. are generally not available for intermediate years. This is the limitation of this study that income model could not be run for 2001-2007 time period.

Collecting sales tax for economic development is unique because the literature addresses a litany of articles on the subject of economic development where the state or city governments give rebates in taxes, assist with their own funds the cost of infra-structure or training to attract businesses with the hope of bringing in jobs to their location. This study is also unique in that it addresses the small Texas cities (with a population of at least 10,000 in year 2000) while most studies on employment, population, or income growth address large metropolitan cities.

It was not in the scope of this study to contact the cities that adopted Sections 4A/4B to get more in-depth information on the corporations which they created and the projects they undertook with the help of the funds collected through sales tax. It would be very useful to conduct a survey using an appropriate questionnaire technique followed by a sample of interviews to decipher the use of funds by type of projects undertaken. This research has concluded that within the limits of statistics, these ED provisions did not affect job or income growth. It will be very prudent as part of future research to investigate

and determine the exact use of funds, actual number of jobs created, improvement in quality of life factors, etc. As we know criticism has been raised in the past as reported in the Dallas Journal by some state legislatures that the funds raised for economic development have been used for ambulances, fire trucks and government buildings in West Texas, private home for a company executive in Longview, etc. Therefore, it will be interesting to understand the utilization of funds towards job growth which is a major objective for any economic development.

APPENDIX 1

ECONOMIC DEVELOPMENT PROGRAMS IN TEXAS

ECONOMIC DEVELOPMENT PROGRAMS IN TEXAS

Table of Contents

Texas Historical Commission Grant Writing Workshops
Texas Industrial Revenue Bond Program: Issuance of Bonds by Development Corporations
Texas Industry Development Loan Program
Texas Leverage Fund
The Texas Main Street Program
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Texas Water Development Board
The Certified Local Government (CLG) Program
Visionaries in Preservation Program

APPENDIX 2

CITIES IN THE STUDY

CITIES IN THE STUDY

City	County	2000 City Population
Abilene city	Taylor /Jones Counties	115,930
Addison city	Dallas County	14,166
Alamo city	Hidalgo County	14,760
Alice city	Jim Wells County	19,010
Allen city	Collin County	43,554
Alvin city	Brazoria County	21,413
Amarillo city	Potter /Randall Counties	173,627
Angleton city	Brazoria County	18,130
Arlington city	Tarrant County	332,969
Athens city	Henderson County	11,297
Balch Springs city	Dallas County	19,375
Bay City city	Matagorda County	18,667
Baytown city	Harris County	66,430

Beaumont city	Jefferson County	113,866
Bedford city	Tarrant County	47,152
Beeville city	Bee County	13129
Bellaire city	Harris County	15642
Belton city	Bell County	14,623
Benbrook city	Tarrant County	20,208
Big Spring city	Howard County	25,233
Borger city	Hutchinson County	14,302
Brenham city	Washington County	13,507
Brownsville city	Cameron County	139,722
Brownwood city	Brown County	18,813
Bryan city	Brazos County	65,660
Burkburnett city	Wichita County	10,927
Burleson city	Johnson County	20,976
Canyon city	Randall County	12,875
Carrollton city	Denton County	109,576
Cedar Hill city	Dallas County	32,093
Cedar Park city	Williamson County	26,049
Cleburne city	Johnson County	26,005
Clute city	Brazoria County	10,424
College Station city	Brazos County	67,890
Colleyville city	Tarrant County	19,636
Conroe city	Montgomery County	36811

Converse city	Bexar County	11508
Coppell city	Dallas County	35,958
Copperas Cove city	Coryell County	29,592
Corinth city	Denton County	11,325
Corpus Christi city	Nueces County	277,454
Corsicana city	Navarro County	24,485
Deer Park city	Harris County	28,520
Del Rio city	Val Verde County	33,867
Denison city	Grayson County	22,773
Denton city	Denton County	80,537
DeSoto city	Dallas County	37,646
Dickinson city	Galveston County	17,093
Donna city	Hidalgo County	14,768
Dumas city	Moore County	13,747
Duncanville city	Dallas County	36,081
Eagle Pass city	Maverick County	22,413
Edinburg city	Hidalgo County	48,465
El Campo city	Wharton County	10,945
Ennis city	Ellis County	16,045
Euless city	Tarrant County	46,005
Farmers Branch city	Dallas County	27,508
Flower Mound city	Denton County	50,702

Forest Hill city	Tarrant County	12,949
Freeport city	Brazoria County	12,708
Friendswood city	Galveston County	29,037
Frisco city	Collin County	33,714
Gainesville city	Cooke County	15,538
Galena Park city	Harris County	10,592
Galveston city	Galveston County	57,247
Garland city	Dallas County	215,768
Gatesville city	Coryell County	15,591
Georgetown city	Williamson County	28,339
Grand Prairie city	Dallas County	127,427
Grapevine city	Tarrant County	42,059
Greenville city	Hunt County	23,960
Groves city	Jefferson County	15,733
Haltom City city	Tarrant County	39,018
Harker Heights city	Bell County	17,308
Harlingen city	Cameron County	57,564
Henderson city	Rusk County	11,273
Hereford city	Deaf Smith County	14,597
Hewitt city	McLennan County	11,085
Highland Village city	Denton County	12,173
Humble city	Harris County	14,579

Huntsville city	Walker County	35,078
Hurst city	Tarrant County	36,273
Irving city	Dallas County	191,615
Jacinto City city	Harris County	10,302
Jacksonville city	Cherokee County	13,868
Katy city	Harris County	11,775
Keller city	Tarrant County	27,345
Kerrville city	Kerr County	20,425
Kilgore city	Gregg County	11,301
Killeen city	Bell County	86,911
Kingsville city	Kleberg County	25,575
La Marque city	Galveston County	13,682
La Porte city	Harris County	31,880
Lake Jackson city	Brazoria County	26,386
Lancaster city	Dallas County	25,894
Laredo city	Webb County	176,576
League City city	Galveston County	45,444
Levelland city	Hockley County	12,866
Lewisville city	Denton County	77,737
Lockhart city	Caldwell County	11,615
Longview city	Gregg County	73,344
Lubbock city	Lubbock County	199,564

Lufkin city	Angelina County	32,709
Mansfield city	Tarrant County	28,031
Marshall city	Harrison County	23,935
McAllen city	Hidalgo County	106,414
McKinney city	Collin County	54,369
Mercedes city	Hidalgo County	13,649
Mesquite city	Dallas County	124,523
Midland city	Midland County	94,996
Mineral Wells city	Palo Pinto County	16,946
Mission city	Hidalgo County	45,408
Missouri City city	Fort Bend County	52,913
Mount Pleasant city	Titus County	13,935
Nacogdoches city	Nacogdoches County	29,914
Nederland city	Jefferson County	17,422
New Braunfels city	Comal County	36,494
North Richland Hills city	Tarrant County	55,635
Odessa city	Ector County	90,943
Orange city	Orange County	18,643
Palestine city	Anderson County	17,598
Pampa city	Gray County	17,887
Paris city	Lamar County	25,898
Pasadena city	Harris County	141,674

Pearland city	Brazoria County	37,640
Pflugerville city	Travis County	16,335
Pharr city	Hidalgo County	46,660
Plainview city	Hale County	22,336
Plano city	Collin County	222,030
Port Arthur city	Jefferson County	57,755
Port Lavaca city	Calhoun County	12,035
Port Neches city	Jefferson County	13,601
Portland city	San Patricio County	14,827
Richardson city	Dallas County	91,802
Richmond city	Fort Bend County	11,081
Robstown city	Nueces County	12,727
Rockwall city	Rockwall County	17,976
Rosenberg city	Fort Bend County	24,043
Round Rock city	Williamson County	61,136
Rowlett city	Dallas County	44,503
Saginaw city	Tarrant County	12,374
San Angelo city	Tom Green County	88,439
San Benito city	Cameron County	23,444
San Juan city	Hidalgo County	26,229
San Marcos city	Hays County	34,733
Schertz city	Guadalupe County	18,694

Seagoville city	Dallas County	10,823
Seguin city	Guadalupe County	22,011
Sherman city	Grayson County	35,082
Snyder city	Scurry County	10,783
Socorro city	El Paso County	27,152
South Houston city	Harris County	15,833
Southlake city	Tarrant County	21,519
Stafford city	Fort Bend County	15,681
Stephenville city	Erath County	14,921
Sugar Land city	Fort Bend County	63,328
Sulphur Springs city	Hopkins County	14,551
Sweetwater city	Nolan County	11,415
Taylor city	Williamson County	13,575
Temple city	Bell County	54,514
Terrell city	Kaufman County	13,606
Texarkana city	Bowie County	34,782
Texas City city	Galveston County	41,521
The Colony city	Denton County	26,531
Tyler city	Smith County	83,650
Universal City city	Bexar County	14,849
University Park city	Dallas County	23,324
Uvalde city	Uvalde County	14,929

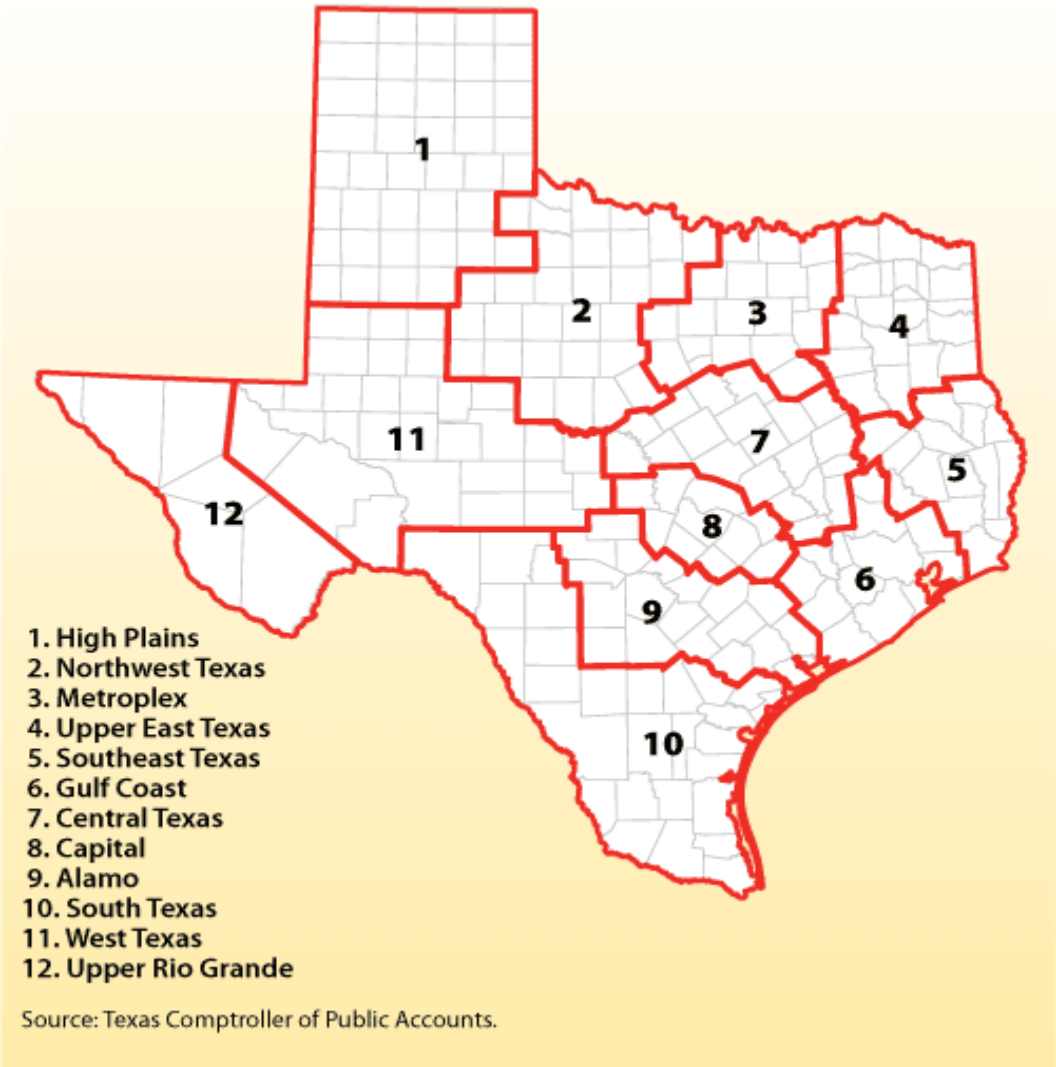
Vernon city	Wilbarger County	11,660
Victoria city	Victoria County	60,603
Vidor city	Orange County	11,440
Waco city	McLennan County	113,726
Watauga city	Tarrant County	21,908
Waxahachie city	Ellis County	21,426
Weatherford city	Parker County	19,000
Weslaco city	Hidalgo County	26,935
West University Place city	Harris County	14,211
White Settlement city	Tarrant County	14,831
Wichita Falls city	Wichita County	104,197
Wylie city	Collin County	15,132

APPENDIX 3

ECONOMIC REGIONS OF THE STATE OF TEXAS

ECONOMIC REGIONS OF THE STATE OF TEXAS

Map of Economic Regions



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