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NETWORKS AND PUBLIC BENEFITS IN PUBLIC-PRIVATE PARTNERSHIPS: A LOCAL ECONOMIC DEVELOPMENT CASE

A Dissertation

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
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by

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ABSTRACT

This research examined a public-private partnership agreement between a private firm and the City of Carson, California. The study was designed to accomplish three objectives. First, the research applied quantitative and qualitative social network analysis to examine and analyze the influence of interpersonal relationships among private and public actors on the adoption of the local economic development agreement. Second, the research examined the actual exchange agreement to determine net benefits to the city by using cost-benefit analysis. Third, the research combined the results from the two analyses to investigate the linkages between power in the process and policy outcomes.

The research made three important contributions. First, key decision-makers played a significant role in approval of the economic development project. The social network analyses show that many individuals possess power in the decision-making procedures, although businesspersons appear to be more active in the economic development activities than elected officials. Second, elected officials are not economic development engines as claimed by most political economists. Instead, this study revealed that the head of the economic development department was the leader in local economic development. Professionalization of economic development may result in efficient and effective policy-making and implementation. Third, this study indicated that tax abatement does not have a significant financial effect or cost reduction in the

long run to the firm. On the other hand, it perhaps is a waste of money to the public sector because the city can receive long-term tax revenues without providing any incentives if the business location was never really at risk.

This study provides a comprehensive evaluation of an economic development policy, so it offers insights about whether the policy is successful and possibly may prevent a waste of public goods in future projects. The results are helpful not only to local economic development practitioners and decision-makers in their evaluation of potential public-private partnership agreements, but also to state and federal decision-makers in considering to fund economic development initiatives implemented at the local level.

CHAPTER I
INTRODUCTION

Since the end of World War II, economic development has become a key policy concern throughout the world. Changes in the political and economic structure over the past several decades have led to a number of radical responses towards economic development policy in the U.S. Policy officials at different levels of government have discovered that greater economic development might be achieved if they take a more active approach towards attracting private investment. Instead of passively waiting for business interests to seize upon new incentives in the tax code, public officials pro-actively court businesses in an attempt to secure contractual agreements. This policy has come to be known as the public-private partnership. Public-private partnerships are contractual relationships between a public authority (usually a local government) and a private company that commits both parties to provide public services. Contractors may involve diversified activities, ranging from design to financing, construction, operations, management, and ownership of facilities.

Public-private partnerships assume that the public and private sectors will cooperate and create new value and benefits for all concerned parties. Unlike the traditional approach of separate roles for the public and private sectors, public-private partnerships are expected to create added value. Proponents of public-private partnerships claim that both the public and private sectors benefit immensely under the

public-private partnership approach. What and how much each sector contributes depend upon overall goals, specific objectives, resources, and economic circumstances. The assumption is that no one sector—government or business—acting alone and without the cooperation and support of the other is likely to be very successful over the long term in turning around a city's economy or in making it more competitive.

Local governments depend heavily on local businesses for tax revenues. However, local governing capacity depends on the ability to regulate the division of labor between the state and business interests within a locality. State and local governments possess the power to influence urban development through a variety of tools including taxation, regulation, subsidies, and provision of services. Furthermore, public officials use these methods to induce economic activity and increase tax revenues through local economic development policies and programs. For instance, political leaders offer various economic incentives such as limited tax abatement, infrastructure supply, grants or loans, and interest subsidies to attract investors.

The public-private partnership has become a popular approach in local economic development. Hundreds of these partnerships already have been implemented across the U.S. State and local governments generally develop a range of competitive incentives and try to seize opportunities through partnering with businesses. Typically, in this approach, a city may want to increase jobs or tax revenues by ensuring the location of a particular business or development in its jurisdiction. In turn, the business wants to reduce costs by receiving some form of financial subsidy or relaxation of regulations (Bartsch, 1991). The public-private partnership agreement specifies the details of this exchange and legally binds the parties accordingly.

Presumably, cities enter a public-private partnership agreement with concomitant costs because officials believe the partnership will yield more benefits than costs. However, little research exists to support the claims made about these collaborative projects or public-private partnerships in general. In fact, local economic development agreements have been criticized by some scholars and practitioners as unnecessary and inefficient (Garber, 1990; Reese and Fasenfest, 1997; Wolman and Spitzley, 1996). Furthermore, researchers raise concerns about the beneficiaries of the gains from economic development programs (Reese and Fasenfest, 1997). In some cases, researchers suggest that these agreements result from the influence of business in local decision-making and not from concern with the public interest. While studies of political influence and power structures within cities are plentiful, virtually no empirical research to date has analyzed the local public-private partnership network from a quantitative and structural perspective or its influence on economic development decisions. That is, the literature lacks analyses of local economic development decisions from a structural, social network perspective.

This research explores public-private interactions of partnership projects using a case study of the Atlantic Richfield Company's (ARCO)[1] proposal to build a polypropylene plant in the City of Carson, California. ARCO built its Los Angeles refinery in Carson in 1923. Over seventy years later, in order to take advantage of leftover refinery fuel and to increase profits in a high-demand polypropylene market, ARCO was looking for a site near the refinery plant to build a polypropylene plant. Polypropylene is one of the world's fastest growing recyclable plastics. Since the new

[1] ARCO was merged with British Petroleum Company (BP) in 2000.

plant would be the only polypropylene plant outside of Texas and Louisiana and would provide jobs and revenues to the city, the City of Carson was enthused when ARCO presented its proposal.

On March 23, 1999, the City Council of Carson approved a $5 million tax rebate to ARCO to secure a new investment, a $350 million polypropylene plant. The plant purportedly would bring at least 1,300 jobs and $30 million in tax revenue to the city over the next fifteen years. It seemed like this was an economic development project beneficial for both the city and the private firm.

This public-private partnership agreement is a typical local economic development project. State and local governments have committed themselves to costly public incentives to attract businesses. However, the net benefits of the subsidies provided by local governments to the locality are unclear. For example, does the public sector actually benefit from these projects? If yes, in the short term or in the long run? What are the true benefits and costs when the public sector makes a new economic development agreement? In addition to answering the above questions, this study explores the decision-making process by examining the power structure and networks of individuals in both sectors in the study city. Specifically, the research explores the relationship between the public-private network and economic development decision-making. This is important to study because a successful economic development program not only relies on economic effects but also may depend on the political and social interactions between city government and local businesses.

This research examines how city governments assess the effectiveness of strategies and policies to stimulate economic development. In other words, the research

identifies the factors involved in an economic development partnership. For example, this study provides evidence to explain how tax incentives influence an economic development project. Although a number of works exist on the examination of tax effectiveness, the set of cost and benefit factors tested in this study will show the economic effects of tax use by local governments, and provide policy suggestions for economic development strategies, especially tax incentives.

The findings from this study will contribute to our understanding of the public-private partnership process. Though public-private partnerships have been implemented for several decades, the structure of public-private relations has barely been addressed. Since state and local governments may have different decision-making policies or use different incentives in the implementation of economic development, the executive processes should have different results with different projects. However, the type of economic development project under study in this research is common in other jurisdictions. The results from this study will provide decision-making structural detail and analysis absent in extant studies. Also, it may prove valuable to public and private entities involved in economic development decision-making and the shaping of their policies.

The network analysis explores the structure of the relationships between the public and private sectors and the potential impacts of these ties. Many political economists claim local elites play key roles in city growth, especially making economic development decisions. Social network analysis provides insight into urban policy making and offers opportunities to examine the structural ties of elites involved in the process. Specifically, the network analysis helps untangle the influence of the power

structure on city economic development decisions. Furthermore, the study will add to the literature on social networks, specifically for policy studies.

The research is designed to accomplish three objectives. First, the research applies quantitative and qualitative social network analysis to examine and analyze the influence of interpersonal relationships among private and public actors on the adoption of the local economic development agreement. This analysis will answer several questions including: Was any individual central (highly influential) in the decision-making process? Were influential individuals in cliques? Was any individual a bridge between the private and public sector? Was power held disproportionately by an individual or by a sector? Second, the research examines the actual exchange agreement to determine net benefits to the city. Using cost-benefit analysis, this research seeks to answer the following questions: What are the full benefits and costs of the partnership agreement? Does the public sector actually benefit from the exchange? If yes, are the benefits accrued in the short term or in the long run? Third, the research will combine the results from the two analyses to investigate the linkages between power in the process and policy (the agreement) outcomes. In other words, the research asks: Are power arrangements or the public interest driving the local economic development agreement?

The research will make three important contributions. First, the application of social network analysis to the study of local economic development opens new pathways for research and theory development. That is, this method of analysis should shed new light on public-private partnership arrangements and examine the validity of community power and regime-based theories. In addition, the research promises to initiate thinking about economic development theory based on social structure properties. Second, the

results will be helpful to local economic development practitioners and decision-makers in their evaluation of potential public-private partnership agreements. By understanding the costs and benefits of these types of exchanges, local officials can make more informed economic development decisions. Third, the results will be useful to state and federal decision-makers in considering their role in funding economic development initiatives implemented at the local level.

CHAPTER II
LITERATURE REVIEW

The literature review for this study concentrates on a number of theory-driven and empirical studies about urban policy making. I will consider studies specifically concerned with local economic development and public-private partnerships. In addition, I will review literature related to the two methodologies employed in this study. First, I will consider the concepts associated with social network analyses and how they may be applied to policy studies. For example, social network analysis has been used by some sociologists to explore political networks at various levels of government. Second, I will use cost-benefit analysis[2] with additional simulation modeling (at risk analysis on financial flows) to test the economic effects of a public-private development project. Although cost-benefit analysis has been applied to government projects for several decades, the variables used to represent costs and benefits may be different in different scenarios. In addition, the new add-in tool for risk analysis may become a useful reference for public financial management. Thus, I will review cost-benefit analysis based upon the operational model as well as actual cases as applied to urban development.

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[2] The term *cost-benefit analysis* is used rather than benefit-cost analysis to avoid implying that a benefit-cost ratio is either necessary or desirable.

Theoretical and Empirical Studies

This study intends to explore many effects generating from an economic development project from three perspectives including the policy-making process, the structural networks among actors, and the financial effects to the public sector. The next section focuses on local economic development with a concentration on public-private partnerships, and the politics in the decision-making process, which refers to urban politics and political economy. The literature review provides a foundation of this study.

Public-private partnerships and local economic development

Local economic development has become increasingly important in the past several decades. Through many crucial policy changes such as federal cutbacks and privatization strategies, the traditional urban political and economic structure has changed because of inter-city competition, poverty, unemployment, local fiscal stress, and global economic restructuring. The combination of reduced national support, economic restructuring, and the reaffirmation of place-based politics, together with the exclusion of urban progressive elements from power nationally, led to a number of radical responses to local economic development policy. Policy officials at different levels of government discovered that greater effectiveness might be achieved if they would take a more active approach toward getting private investment. Instead of passively waiting for business interests to seize upon new incentives in the tax code, public officials would actively court them and attempt to secure quasi-contractual arrangements. This policy has come to be known as the public-private partnership. In addition, the increasing growth of local autonomy and the implementation of public-private partnerships are gradually sharing the responsibilities of federal grant programs in community development, housing, or urban

infrastructure. At this point, most economic development funds at the local level originate from public-private partnership projects and programs. As a consequence of cooperation and the development of public-private partnerships, local actors are creating new economic development opportunities.

Generally speaking, economic development strategies focus on industrial, commercial, and community objectives. Many large-scale development projects at the state or local level encompass all three. In addition, creating wealth and reducing employment are often important objectives of economic development projects. Whereas local government implements the economic development plans for the above purposes, local legislators, some of them are businesspersons, at the same time may judge the economic development projects based on their self-interests. Sometimes, economic development programs might sacrifice the physical environment (Burby, 1999), thus, economic development not only involves economic affairs, but also includes physical, political and social issues. In this way, the public-private partnership as an economic development strategy concerns city politics, economic partnerships, and social development as well as local economic development.

Traditionally, localities have sought federal grants, e.g. the Model Cities program,[3] the Urban Development Action Grants[4] (UDAG), and the Community

[3] The Johnson administration launched the Model Cities program in 1966. The program targeted federal funds to special districts where locally elected boards had hammered out a coordinated plan for the improvement of housing, health, education, employment, and welfare.

[4] In 1974, the Carter administration introduced UDAGs to revitalize American cities. The program ended in 1988.

Development Block Grant[5] (CDBG) program, for economic development planning and projects. Beginning with federal cutbacks by the Reagan administration in the 1980s, local officials, in a growing numbers of places, have been looking for the talent, resources, and ideas needed to spur local economic development. Known as "*entrepreneurial government*"[6] in recent years, the cities use governmental powers to combine, coordinate, and integrate the mobilization of resources from a variety of public and private sources (Osborne and Gaebler, 1992; Rothenberg, 1997).

The traditional sources of funds for local development have declined in recent years. Federal grants, loans, and loan guarantee programs administered by the domestic assistance agencies have been reduced or terminated. Local government has responded by adopting policies to attract private sectors investment. Furthermore, expansion of public-private partnerships is worth consideration by government, both because of the fiscal plight of most cities and because traditional modes of local government action are inherently incapable of meeting a city's fiscal needs (Rothenberg, 1997). This economic dependence is rooted in a fiscal system that assigns inelastic, regressive revenue sources such as the sales tax to local government (Clarke, 1998). Tax increment financing, which was to create incentives for investment in specific areas of a city such as Enterprise Zones, for example, became a popular alternative to help cities to raise funds for

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[5] Presidents Richard Nixon and Gerald Ford merged most federal grant programs into one program with single block grants through the passage of the Housing and Community Development Block Grant Act in 1974.

[6] Cohen and Eimicke (1999: 55) noted that "the transformation of existing, outdated bureaucratic organizations into agile, anticipatory, problem-solving entities is what reinventionists call '*entrepreneurial government*'."

infrastructure investments in specific areas with high unemployment, population decline, or other economic difficulties (Walzer and Jacobs, 1998).

For economic development to occur, the development environment must be conducive to investment. Generally speaking, in most countries investment in macroeconomic environment is simply assumed through many stabilization policies such as monetary control and export expansion. It is also assumed that various adjustments in the tax code aimed at offering businesses incentives will stimulate investment. In some city economic development cases, governments use public finance policies to stimulate investment and long-term benefits, even though in the short run the government spends or foregoes capital. Cities have a unitary interest in creating economic activity that employs residents, generates tax revenues, and contributes to attractive locational sites for capital and households (Peterson, 1981; Clarke, 1998). Since financial incentives have become the common strategy to attract private investment, the public sector should cautiously consider incentives such as tax breaks, grants or subsidies, and bond or loan support, while implementing financial partnership with the private sector.

Public-sector tools or incentives, such as tax-exemption bonds and subsidies, usually accompany public-private partnerships. These tools or incentives are created through negotiations between the public and private sectors. Typically, public-private partnership tools are divided into two types: financial and nonfinancial (Bartsch, 1991). Financial tools include: grants, loans (primary or subordinated), loan guarantees, interest-rate subsidies, bond financing (taxable or tax-exempt), equity financing (venture or seed capital), royalty agreements, and tax credits, deductions, or abatements. The aim of non-financial tools is to reduce the cost of doing business or to improve the climate for

development. Some examples of this type of economic development assistance include: counseling or consulting services, referral or liaison services, loan packaging, market-identification services, site selection, and training and research development (Farr, 1984; Bartsch, 1991; Kotler, Haider and Rein, 1993).

Although many state and local governments use the above tools to attract private sector investment, Fisher and Peters (1998) worry that state and local competition for new industrial investment is potentially harmful to economic growth, because it may reduce the ability of state and local governments to finance investments. Hence, local governments should make a complete evaluation of their needs and resources before they provide incentives to the private sector. Otherwise, public-private partnership policy may be a zero-sum (Blair and Kumar, 1997), or worse, a negative-sum game.

Successful economic development may be possible only with the active participation of both the public and private sectors in the local power structure. Shively (1994) suggests that economic developers should: 1) identify the members of the power structure in the community; 2) get to know the players; 3) learn what motivates each member; and 4) seek their counsel and advice. Since the economic leaders and elected officials are the dominant parties in many economic development decisions, they also take control in the negotiation of public-private partnership projects. Many factors may affect the partnership results (Peterson, 1981; Shively, 1994; Batley, 1996; Cox, 1997; Judd and Swanstrom, 1998). These factors include the following:

1. Competition among businesses: The more groups competing with each other, the larger the effects of elite power.

2. Competition among political parties: The political elites who have more power in decision-making (*e.g.*, city manager) can make larger and potentially more costly deals with businessmen.
3. Economic diversification: The more the urban economy is diversified, the less the power of the business elite.
4. Political culture: The shared values, traditions, myths, and accepted behaviors of a community constitute its political culture, which may affect outcomes.
5. Public participation: communities that place a high value on public involvement should have greater opportunities to undertake fair partnership programs because of their citizens' involvement.
6. Orientation of political leaders: Those with a strong local orientation will frequently intervene in local politics, while those with a more cosmopolitan orientation—with interests and ambitions outside the locality—may take less of an interest in local affairs.
7. Community organizations: The organization of minority and neighborhood groups may challenge the elite's policies in such areas as economic development.

Reese (1993) explained the importance of bureaucrats and bureaucratic procedures. In her survey of economic development professionals, Reese found that 69% of the economic development directors believed that they are most influential in initiating economic development activities. Economic development directors also believed that projects are primarily guided by the professional training of decision-makers (55%) and that such decisions are mostly left to economic development administrators (62%). The survey results clearly indicated that economic development decisions are primarily the

province of professionals, that simplifying rules are employed, and environmental turbulence adds to the tendency to use decision rules.

Economic development policies can be affected by individual local leaders (Basolo, 2000). In the U.S., political leadership tends to be drawn from private business and the professions closely connected with development, while elected politicians are increasingly drawn from the salaried and professional classes in Europe (Keating, 1995). Case studies have shown the importance of a powerful mayor and other locally elected officials to economic development efforts (Fosler and Berger, 1982; Fainstein and Fainstein, 1989). Reese (1997) argued that governmental structure, administrative arrangements, and leadership do make a difference in local economic development. Bowman's (1988) research also identified the importance of leadership in local economic development in the Southeast.

Since public-private partnerships have been examined as a product of power blends in economic development (Walzer and York, 1998), the stakeholders in a public-private partnership usually are the sources of community power, although the increasing autonomy of local bureaucracy may weaken the elites' control. In addition, the decline in the autonomy of communities may decrease the power of local elites and cause them to shift their focus to different areas. Nevertheless, no matter what public-private partnership policies are adopted by both political and economic elites, community power most likely will influence economic development outcomes.

There are three different roles for public-private partnerships in local economic development: creating synergy in the urban political economy, increasing communication between the private and public sphere of society, and generating legitimacy for local

economic development strategies and the politics of growth. Increasing communication between both parties, for example, can establish the network that offers political resources to the private sector and offers profit opportunities to the public sector.

Humphrey and Erickson (1993) examined the impact of local industrial development groups on economic development. They concluded that the local network of the groups included meetings, the exchange of information, and collaborative working arrangements with the chamber of commerce, boards of realtors, and manufacturing associations. Ties with the local chamber of commerce have been found to be especially extensive. The network connection among these groups not only creates a bridge for the resources, information, and potential opportunity exchange and support inside and outside the community (Humphrey and Erickson, 1993), but also represents an effort to create conditions needed for ongoing economic development activities (Cox and Mair, 1991).

The private sector relies on the prosperity of local economies for its own survival and recognizes the importance of public policies to the economy (Rubin, 1986). Therefore, the private sector will attempt to influence the local public sector process. According to Humphrey, Erickson, and Ottensmeyer (1989), private-sector members are frequently represented on the boards of local authorities or quasi-public organizations. The private sector recognizes that these network ties have positive distributional effects on business and the local economy. Similarly, local public officials seek coordination and partnership with the private sector to strengthen the economy.

Cities seek effective strategies to secure funds for development and to support local economic development projects. They have used governmental powers to combine,

coordinate, and integrate the mobilization of resources from a variety of public and private sources. Local governments depend heavily on local business for tax revenues. However, local governing capacity depends on the ability to regulate the division of labor between the state and market within a locality. State and local governments possess the powers that influence urban development such as taxation, regulation, subsidy, and service provision. Public officials develop characteristic strategies for using the government's capacities to induce economic activity and elicit political support. They can alter local development, and electoral coalitions may play a role in shaping regime priorities (Sites, 1997).

During the nation's transition to an industrial manufacturing-based economy, the dominant economic function of the city was as a site where the major factors of production – land, labor, and capital – could be most efficiently combined for large-scale production. In a market economy, businesses decide which goods and services are to be produced. The decision-making and production processes are considered to be efficient. Because of the central role business plays in determining standards of living, governments generally facilitate a business-friendly environment in order to ensure that such functions are performed efficiently.

Private entrepreneurs can garner profits through participation in urban affairs, but these publicly-related activities require sensitivity to public concerns and communication with local public officials and often residents of the community. Also, the private sector shares a strong interest with the public sector for growth in the economy. Since public-private partnership may be assumed to create synergy in the urban political economy (Stoker, 1998), it opens a gateway for private industry to gain influence in political

decision-making and, eventually, also to the powers and capabilities controlled by political institutions.

According to Wolman and Spitzley (1996), there are a few factors that compel local governments to engage in economic development activities, including the urban political system and inter-city competition. First, urban politics, as interpreted by Painter (1995), include urban policy, the institutions and processes of urban government and governance, and political movements and processes. Consequently, policy making for local economic development, as Sanders and Stone (1987) and Bachelor (1994) have affirmed, is highly political. Schneider and Teske (1993) explicitly showed that the political structural conditions of local government affected the benefits and costs of entrepreneurship, and thus, the probability with which entrepreneurs were found to be involved in local governments. With limited financial resources and economic development powers, the cities' development strategies rely on the private sector to improve efficiency and lower costs (Harding, 1996). Second, inter-city competition for economic development can be a pervasive theme. Local governments in metropolitan areas compete for major shopping malls, big industries, and various private investments by offering financial subsidies to maintain old, or attract new, business investments. Inter-city competition for economic development has not only become a major thrust of local development policy (Kantor, 1987), but also has increased the potential for public private mixing. In sum, it has become a trend that the public and private sectors more often cooperate with each other and promote local economic development together in various ways. In order to strengthen economic development, it is crucial to gain a better

understanding of both sectors by examining their interaction and evaluating their political and economic behaviors.

Power structure in the decision-making process: Urban politics and political economy perspectives

In recent years, the concept of urban regimes has been used to describe the political coalitions that govern cities (Judd and Swanstrom, 1998: 9). This concept describes the coordination of public power and private resources. Because the most important private resources in most cities are held by business institutions, they tend to be central to local regimes, though other organized interests can exert considerable influence at times. Regime analysis has become a popular approach in the study of urban politics since the mid-1980s. It provides a new conceptual framework and particular theoretical statements about causal relationships and behavior in urban politics. Urban regime analysis is an attempt to understand local governmental cooperation with private participants in managing and securing economic development. According to Stone (1993: 6), "Urban regime theory assumes that the effectiveness of local government depends greatly on the cooperation of nongovernment actors and on the combination of state capacity with nongovernmental resources." One of three regime types Stone (1989) presented is the corporate regime—one in which private interests play a major role in guiding development policy and public authority, and resources are used to subsidize private investment.

Cities tend to develop into "regime politics" through the development of a strong coalition of the public and private sectors with mutual interests in economic growth (Molotch, 1976). Many advantages for both the public and private sectors can be gained from public-private partnerships, as noted above. Increasing communication between

both parties, for example, can establish the networks, which offer political resources to the private sector and profit opportunities to the public sector. Since this research is about evaluating the decision-making process in a public-private partnership project and local economic development program, the local power structure, particularly the relationships between local government and the private sector, will be the major focus of my study. The literature from urban politics and political economy is a good starting point for understanding power structure. This section will review literature in urban politics by classifying four major views, including community power, growth machine, urban regime theory, and regulation theory.

The community power study can be traced back to the 1920s and 1930s when Helen and Robert Lynd (1929; 1937) published the pioneering studies, *Middletown* and *Middletown in Transition*, in the field of urban decision-making. They found that the city's most important family dominated the business class of Muncie, Indiana, and maintained its influence in local education, housing, religion and government. A business elite ran the community. The Lynds' study inspired a new interest in power studies. Until the 1950s, many political theorists in the U.S. made government rather than power their primary focus (Trounstine and Christensen, 1982). They concentrated on the formal structure of government and tended to ignore all the other quasi- or non-governmental forces that operate in government. An exception was sociologist Floyd Hunter's (1953) study of the power structure in Atlanta. The power structure he described was based on input from community leaders and activists and labeled "*elitist.*" Only four of Hunter's forty influentials were public officials; the rest were mostly bankers, manufacturers, and other business leaders. Their power operated informally.

Elected officials were subordinate to these leaders, doing their bidding, but not fraternizing with the elite. Shortly after the publication of *Community Power Structure*, C. Wright Mills' *The Power Elite* (1956) made a similar argument, but about the national power structure which Mills said was dominated by the bureaucracy, the military, and economic elites (Mills, 1956).

Hunter did not systematically link Atlanta's elite relations to individual decision-making events. Rather, he gave narrative accounts of events such as tax changes, industrial relations, housing, traffic control, and race relations. Because Hunter failed to track the elite's participation in important community events, he could not demonstrate rigorously that the power elite always prevailed in the outcome of collective decisions. However, both Hunter and Mills implied that genuine democracy was being subverted by the economic structure.

Robert Dahl, a political scientist, criticized Hunter and Mills' elite theory by developing his own alternative theory, which came to be known as *pluralism*. Dahl, in his book, *Who Governs* (1961), considered three issues: political nominations, urban renewal, and public education in New Haven, Connecticut. He investigated each decision by using public documents, participant observation, and personal interviews. The data did not reveal a monolithic economic elite deciding every outcome but a diverse and shifting plurality of major players. He concluded that there was no power elite in the city. He also found economic leaders were only one active group among many. He recognized that some individuals and groups have more power than others and that business leaders had much unused power. He concluded that officials elected or employed by the public dominated the process. Frederick Wirt (1974) reached similar

conclusions in his power study of San Francisco. Variation among studies appeared mainly in the degree of mayoral power, whether the mayor dominated the process as a "broker" among competing groups as in New Haven (Farr and Rose, 1984), or failed to do so as in San Francisco (Trounstine and Christensen, 1982).

Although power is exercised in the making of a decision, power can also be exercised in a way that is not so easily observed if a group can keep an issue from developing to the point that a decision must be made. Bachrach and Baratz (1962) detected a second "face" of power and claimed that a hidden process of politics, which they called *nondecision-making*, can preempt the public airing of particular issues.[7] The pluralist method of focusing only on the actual making of decisions would miss this other face of power or the ability to use power to keep an issue from developing on the urban agenda.

The pluralistic power structure uncovered by Dahl was strikingly at odds with the dominant economic power elite in Hunter's Atlanta (Domhoff, 1978). Power in a pluralistic structure did not accumulate across a range of issues, but was dispersed due to inequalities of resources such as money, jobs, expertise, authority, and social position. The important features of a power structure are the number of powerful decision-makers and the number of policy event arenas in which they participate. Community power research may be extended to identify the networks involved in decision-making among a plurality of interested organizations. Although most community power research concentrates on elite decision-makers, the relationship between city government leaders and the larger community population remains an important component.

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[7] Also see Bachrach and Baratz (1970), pp. 43-46.

Public-private partnerships have been examined as a product of power mixing in economic development (Walzer and York, 1998). The stakeholders in a public-private partnership usually are the sources of community power. The increasing autonomy of local bureaucracy may weaken elite control. The decline in the autonomy of communities may also decrease the power of local elites and cause them to shift their focus to different communities. No matter what public-private partnership policies are adopted by both political and economic elites, power will continue to influence economic development outcomes.

When Molotch's (1976) seminal paper, "*The City as a Growth Machine*", was published, it directed researchers' attention from community power studies to growth machine studies. According to Molotch (1976: 311), the city had become "a mosaic of competing land interests capable of strategic coalition and action." He implied the community power studies had failed to relate their studies of elitism and pluralism to the power relations and resources in urban development (p. 309). A growth machine can be seen as just one form that a development coalition may take. For example, new social and environmental movements were emerging to challenge the activities of land-based elites. The politics of development coalitions depend on their internal composition and terms of their relationships with the private sector and national government. At the core of the growth machine is a coalition of business leaders pushing for local policies that attend to the needs and interests of the local development community (Schneider and Teske, 1993). The growth machine thesis in some ways further refines elite theory, but it focuses on the broad field of urban development. However, the growth machine thesis is not just an extension of urban elite theory. The focus on urban development issues is

more specific than in the diffuse community power studies. It was an attempt to link the political, the economic, and the spatial all in one notion of urban growth and development.

One of the prime activities of growth coalitions, according to Molotch (1976), is the attempt to organize local political and economic resources in such a manner as to make the city an attractive location for the in-migration of outside businesses and mobile capital. In this effort, government activities are crucial when decisions are made by large landowners and employers, such as local major corporations. Local governments and businesses are lobbied by the local growth coalition in an attempt to generate the infrastructural preconditions such as tax incentives, new public service extensions, and private capital investments. Therefore, cities become "growth machines" and are always in competition with other cities for limited capital. Moreover, they strive toward more extensive and intensive patterns of local land use. However, sometimes the growth may be a zero-sum game if the net benefits are less than the cost of growth. Molotch argues that pro-growth forces attempt to form a coalition with others of similar tendency in order to secure the benefits of growth for themselves.

Logan and Molotch's (1987) hypothesis was that a coherent coalition of elites had a vision of the city's future that aligned with their own interests, as well as the power to make their vision a reality (Logan, Whaley and Crowder, 1999). They suggested that growth machines are the dominant forces in urban development. The growth machines pursue development through intensified land use that increases land values and thus land rents for members of the growth machine. In his Atlanta study, Stone (1976: 38) observed that the goal of urban growth is "the glue that has held the Atlanta business

community together as a political force." In addition, Peterson (1981: 21) argued that local urban growth and development is to the "benefit of all residents."

The growth machine concept has been popular for more than a decade in the study of local power and politics. Although a few studies supported the growth machine hypothesis that growth coalitions dominate the local political arena, the old question of "Who rules cities?" was still an unanswered question. A new line of inquiry, urban regime theory, was proposed in the late 1970s. It soon helped to reposition the old community power and growth machine debate in relation to a wider political and economic context.

Urban regime theory has become a force in the study of urban politics since the late 1970s. It provides a new conceptual framework and more particular theoretical statements about causal relationships and behavior in urban politics. Urban regime theory is an attempt to understand local government participants cooperation with private participants in managing and securing economic development. In recent years, the concept of urban regimes has been used as the primary model to describe the political coalitions that govern cities (Judd and Swanstrom, 1998: 9). This concept describes the coordination of public power and private resources. Because the most important private resources in most cities are held by business institutions, they tend to be central to local regimes, though other organized interests can exert considerable influence at times.

Many researchers contributed to regime theory by exploring case studies. Elkin (1987) pointed out three kinds of regimes: *pluralist, federalist, and entrepreneurial.* "The primary feature of pluralist political economies," he stated, "was an inclusive coalition that dominated land-use matters, particularly those linked to the economic

vitality of the downtown" (p. 55). The land-use coalitions were more able to influence events rather than determine decisions in the policy arenas. Having gained evidence from his four-city study, Elkin also posited that the principal elected officials and regular party politicians were typically the partners of these coalitions. The second type of regime, federalist, reflected the distribution of the land-use pattern by federal urban assistance funds. City officials used part of federal funds for minority groups and neighborhood leaders to support social services so that these politicians could utilize federal funds (e.g. Urban Development Action Grant and Community Development Block Grant) on the land-use patterns of the central core of the city. The flow of federal dollars had affected the autonomy of functional bureaucracies, and in the meantime, it also enhanced the investment on the land interests in the city. Elkin used Dallas as an illustration to explain his third type, entrepreneurial regimes, which reflected the structural factors that defined the shape of city politics. According to his Dallas case study, the links between public officials and business leaders were extensive and well-developed. The extensiveness of the links was suggested by the fact that leading business figures were also the principal elected officials. Thus, the alliance "that was able to shape the workings of city political institutions as to foster economic growth" (p. 61) was dominated by business figures in entrepreneurial cities like Dallas.

Adopting a similar approach to study Atlanta's political regime, Stone also presented three regime types in the politics of urban development (Sanders and Stone, 1987; Stone, 1989). The first type, the *corporate regime*, is one in which private interests play a major role in guiding development policy and public authority and resources are used to subsidize private investment. Middle and lower class neighborhood groups play a

major role in policy making in the second type, the *progressive regime.* In the third type, the *caretaker regime*, small business and homeowners constrain city governments in policy making. According to Stone (1993: 6), "urban regime theory assumes that the effectiveness of local government depends greatly on the cooperation of nongovernment actors and on the combination of state capacity with nongovernmental resources." In Stone's opinion, the regime in Atlanta has involved a long line of mayors and the city's business elite. In sum, all three of Elkin's (1987) regime types in Dallas, as well as Stone's (1989) interpretation of Atlanta, are consistent with the growth machine on urban growth.

Other researchers also contributed to the regime literature. Sites (1997) evaluated the urban regime perspective by examining the evolution of local policy in New York City under three mayoral administrations during a twenty-year period between the mid-1970s and 1997. He emphasized the importance of political leadership and policy in the process of economic development. Whether the issue is service provision or fiscal stability, the decision-making process still strongly depended on local leaders (Sites, 1997). Thus, Judd and Swanstrom (1998) argued that city policy-makers must follow an "economic logic" that required them to adopt policies to persuade businesses and investors to remain as participants in the local economy, by either keeping tax rates relatively low or by increasing the quality of services and amenities.

Imbroscio (1997) connected current urban regime formation to two broad structural features of urban policy: the "*external economic dependence*" and "*interest resource dependence*" of city public officials. The former included two features, global economic restructuring in the postindustrial era and the existence of a relatively

decentralized federal system that encourages economic competition among sub-national governmental units. He also argued that even if external economic pressures were greatly reduced, the attraction between public officials and land-based business interests for the most part would remain, and city politics and public policy would look much as it does now.

In fact, urban regime theory suggests that power comes from actors and institutions gaining the capacities to act by blending their resources, skills and purposes into a long-term coalition. Regime theory views power as structured to gain certain kinds of outcomes within particular fields of governmental endeavor. In other words, regime theory is concerned more with the process of government-interest group mediation than with the wider relationship between government and its citizens. Some researchers (Painter, 1997; Lauria, 1997; 1999), however, think that urban regime theory has not adequately specified how governing coalitions are transformed and/or become hegemonic, and hence has failed to address how particular urban growth paths may or may not stabilize. They intended to produce a reconstructed urban regime theory by discussing regulation theory and the wider urban politics literature.

Developed by a number of Marxist economists (Aglietta, 1979; Boyer, 1990), regulation theory emerged from France in the 1970s and early 1980s. According to Painter (1997), regulation theory covers two core concepts, including "the regime of accumulation, which specifies the nature of the economic relationship between investment, production and consumption, and mode of regulation, which specifies the political and sociocultural institutions and practices which secure that relationship" (p. 277). Regulation theory begins with the insight that the process of capital accumulation

is inherently contradictory. As Lauria (1999: 130) states "regulation theory takes its starting point from one of Marx's main insights, that capital accumulation is a contradictory process and thus cannot reproduce itself without the assistance of social, political, and cultural mechanisms." In other words, regulation theory is concerned with the regulation of the process of capital accumulation within a particular capitalist mode of production. On the other hand, the mobility of capital may give the private sector a great deal of power in local politics. Furthermore, the owners of a business can simply threaten to relocate their facilities in another city. Cities therefore cannot afford to risk the loss of their jobs and tax bases.

Although regulation theory concerns economic rather than political change, political processes do play a crucial role in economic change. For example, some organizations such as labor unions will begin to be involved in political decision-making when there is an economic change (capital shift). Drawing on case studies of race relations and local politics, Lauria (1999) also argues that regulation theory based upon regime transformation should at least include three mechanisms: race and electoral coalition stability; party politics and extremely encouraged regime transformation, and capital fragmentation within the governing coalition. Since regulation theory is about evaluating the relationship between local economic strategies and prevailing hegemonic projects, the effects of growth coalitions should be tested and explored when researchers seek the significance of growth politics.

Although regulation theory is a relatively recent concept, there have been some arguments about urban regime versus regulation theory in the past few years. First, according to Feldman (1997), and Lauria (1999), urban regime theory is really about

economic politics, not urban politics. They argue that regulation theory offers a broader theoretical framework in which to embed a reconstructed urban regime theory. Second, unlike the growth machine and urban regime theories, which focus on the interest entanglement of local development politics, regulation theory is concerned with the political economy of capitalism. Third, regulation theory focuses on local political and economic influences, while urban regime theory focuses on the machination of political practices. Fourth, urban regime theory is about "development politics" (Stone and Sanders, 1987) and how governing coalitions shape local urban development policy, while regulation theory focuses on broad epochs in capitalist history and the large-scale regulation processes (Feldman, 1997). Fifth, urban regime theory tends to be tied to causal relations while regulation theory is more open to causality (Lauria, 1997; Goodwin and Painter, 1997).

As Jonas and Wilson (1999: 4) concluded "most notably, community power studies, which arguably represented the most influential approach to the analysis of local politics at that time, had failed to relate their studies of elitism and pluralism to the power relations and resources underpinning the formation and development of urban places and systems." The traditional community power debates were substantially overtaken by neomarxist structuralist approaches much less concerned with the autonomy of urban politics within the intergovernmental system. Urban regimes as well as growth machines fit within the broader research effort to develop a political economy of "place". For example, Logan and Molotch's (1987) work on growth machines is in many respects a development of elitist theory, while regime theory has a connection to the refinement of pluralism as well as elitism. Both theories are significant advances on the traditional

community power debate. They focus exclusively on urban development and economic growth. Lastly, regulation theory may become a more conceptually robust approach/framework for urban politics.

As Logan, Whaley and Crowder (1999: 92) stated "after two decades of research, we are still unsure whether growth machines make a difference to urban development. Much greater attention needs to be given to consideration of the efficacy of local regimes and formal politics." Through community power study to the current domination of urban regime theory and regulation theory, researchers in urban politics may be able to answer "Where are the influential groups?" and "What type of coalitions may arise around political and economic issues?" Studying political economy, however, does not only concern "Who owns power?" or "What power do they own?" but also has to explore "Who and what determines power?" One approach to understanding power is to examine the relationships, specifically the power network, among key individuals or groups. Social network analysis, as adopted by many sociologists, is perhaps one of the few tools to explore the power networks.

Methodological Studies

The early structural analyses of community power were further eclipsed by a diffusion of multivariate methods from status attainment research to the ecological analysis of urban phenomena (Knoke, 1990). Using data on entire cities as units of analysis, researchers tried to explain taxing, spending, and municipal policies as linear functions of such variables as formal government, urban populations, growth rate, racial composition, and poverty. These high-level aggregations ignored significant interactions

among different political factions struggling to shape collective resource allocations. In particular, power as relationships of domination and influence among community elites was impossible to measure with such data. Furthermore, networks of urban political power (Hayes, 1972; Domhoff, 1990; Knoke, 1990) and inner circles (Useem, 1984) may point out a growing realization of the inadequacies of urban development and establish a basis toward the continuing productive evolution of the analysis of the political and social aspects of urban development.

Decision-making studies have been developed by political economists, political scientists, and sociologists. Debate among pluralists, Marxists, elitists, and regime political scientists about power structures and decision-making process fundamentally revolves around the existence of a cohesive ruling class, which effectively dominates all the major decisions made by government officials. Since the power structure is seen as one of the most important factors in the decision-making process, measurement of the power effects/influence in local economic development is essential. In order to test political effects in the decision-making process in this study, I will use social network analysis to examine the power structure and to further determine how power influences local economic development. In addition, I use cost-benefit analysis in order to test the fiscal effects of a specific agreement for both the public and private entities involved in the agreement.

Social network analysis

A number of disciplines have shaped the development of social network analysis. German psychiatrist Jacob L. Moreno (1934), who developed an approach known as

sociometry,[8] used network diagrams to represent interpersonal relations in small groups. British anthropologists John A. Barnes (1954), Elizabeth Bott (1957), and J. Clyde Mitchell (1969) investigated the structure of community relations in tribal and village societies. Some sociologists at Harvard explored the patterns of international relations and established the mathematical basis for the analysis of social structure (White, 1963; 1970; Boorman and White, 1976). Their extensive research, specifically focusing on ego-centric networks, soon firmly established social network analysis as a method of structural analysis in the 1960s and early 1970s (Scott, 2000). Influenced by mathematically-orientated structural analysts, some scholars started using algebraic ideas to model structural relations and developed advanced techniques for network analysis in other disciplines. Linton C. Freeman (1979), for example, developed a measure of the centralization of a network, based on the difference between of the centrality of the most central unit and the other units. His work has become one of the most important measurements in social network analysis.

Generally speaking, there have been three distinct research traditions (Wellman, 1983): the concept of the social network, social structure as social network, and structural explanations of social/political processes. Network analysts use the concepts and methods of graph theory, which generate the mathematical analysis of nodes and links (Burt, 1980). Due to limitations in the scale of social systems and the complexity of these sociological analyses, network analysts use matrices in which each cell represents a potential tie from one network member to another. In addition, they use standard

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[8] Moreno used *sociometry*, which was also a journal found by Moreno in 1937, as a method to investigate how psychological well-being is related to the structural features of what he termed 'social configurations'.

statistical methods, supplementing them with such measures of network properties as the density of ties and the centrality of members. Blockmodeling, for example, has helped researchers to discover basic social structures and to compare actual networks with hypothesized structures.

Social network analysis encompasses theories, models, and applications that are expressed in terms of relational concepts or processes. Some theoretical concepts have been the inspiration for the development of specific network analysis methods. Pioneers from different disciplines have taken particular aspects of the theoretical idea of social groups to develop more precise social network definitions. There are three major mathematical foundations of networks methods: graph theory, statistical and probability theory, and algebraic models.

First, graph theory provides an approximate representation of a social network and a set of concepts that can be used to study formal properties of social networks. It gives us mathematical operations and ideas in which many of these properties can be quantified and measured. Its terminology can be used to label and denote many social structural properties (Scott, 2000). For example, we use graph theory as a model of a social system consisting of a set of actors and the ties between them. Actors in a network are represented as nodes of a graph while ties between actors are represented as lines between the nodes of the graph. In addition, graph theory also gives us the ability to prove theorems about graphs and representations of social structure (Barnes and Harary, 1983).

Second, statistical theory is important as people begin to study reciprocity, mutuality, balance, and transitivity (Wasserman and Faust, 1994). Research on statistical

models for social networks increased in 1980s and development of more advanced statistical models continues today. Simple log linear models of dyadic interactions are now commonly used in practice in either a nominal or an ordinal scale (Scott, 2000). Statistical models become necessary when researchers test hypotheses about various structural tendencies on multivariate relational network data. For example, special statistical procedures designed to formalize social network analysis notions about the density of ties, the centrality of actors, and structural equivalence may contribute to a unique analytical toolbox that further distinguishes social network analysis from conventional social analysis (Wasserman and Faust, 1994; Erickson, 1997; Scott, 2000).

Third, algebraic models are widely used to study multirelational networks such as kinship systems (White, 1963), friendship networks (Brass, 1984), and network role structures (Mandel, 1983; Boyd, 1990; Pattison, 1993). A network structured by algebraic models may refer either to relations among individuals or to relations among other social units such as blocks in a blockmodel (Pattison, 1993). In particular, algebraic methods allow for a general means of analyzing network representations into simple components, a property that may greatly enhance the descriptive power of the representation.

Discussed through the above theoretical development, three different notational schemes are used to represent a wide range of network data (Wasserman and Faust, 1994). First, graph theoretic notations become most useful for centrality and prestige methods, cohesive subgroup ideas, as well as dyadic and triadic methods. It provides a straightforward way to refer to actors and relations. One presents the data for each relation in a two-way matrix, termed a sociomatrix, where the rows and columns refer to

the actors making up the pairs. Sociomatrices are adjacency matrices for graphs. Second, sociometric notation is often used for the study of structural equivalence and blockmodels (White, Boorman and Breiger, 1976). The third notation is algebraic notation, which is most appropriate for role and positional analysis and relational algebra. Such analyses use algebraic techniques to compare and contrast measured relations, and derive compound relations.

There are a variety techniques in which network data can be collected such as questionnaires, interviews, observations, archival records, experiments, and other qualitative techniques (Wasserman and Faust, 1994). Questionnaires and interviews, for example, are very useful when the study objects are human beings. They can be implemented under several formats, e,g, roster or free recall, free or fixed choice, ratings or complete rankings. Network data also can be obtained from archival records such as journal articles, newspapers, and minutes of meetings (Burt and Lin, 1977). Throughout the network data collection procedure, a specific group of members will be identified from the actor population. Knoke (1994: 280) provided four techniques to locate the key actors:

1. Positional methods: Persons or organizations in the key roles such as the elected or executive positions in the units;
2. Decisional methods: Actors influencing or participating in the decision-making process;
3. Reputational methods: Actors who are believed by knowledgeable observers to possess or exercise actual or potential power in the system; and

4. Relational methods: Actors who maintain important relationships with other members whom are not found through reputational queries in the system.

Network data gathered from the above methods attempt to measure the ties among all the actors in the set, in addition to collecting actor attribute information. The items regarded as the attributes of particular individuals such as gender and education can be analyzed through variable analysis in the statistical procedure where attributes are measured as values of particular variables. Relational data, on the other hand, are the ties and connections that relate one to another. By undertaking quantitative and statistical counts of relations, network analysis, which is employed to be the measures of network structure, should illustrate attribute and relational data.

The primary tenet of network analysis is that the structure of social relations determines the content and outcomes of those relations. The centrality of actors and the density of ties are perhaps the two most important and fundamental measures of structural relations. An actor is prominent if the ties of the actor make the actor particularly visible to the other actors in the network. Freeman (1979) has developed a measure of the centralization of a network, based on the difference between the centrality of the most central unit and the other units. According to Freeman, centrality can be determined by three types of relation measurement: 1) degree, which refers to the number of direct ties between an actor and other actors in a network; 2) closeness, which refers to the extent to which an actor can reach a large number of other actors in a small number of steps; and 3) betweenness, which refers to the extent to which an actor has a unique path between other actors, so that the latter must deal with the former if they are to communicate. The centrality measurement is critical in most network studies. For

example, Brass and Burkhardt (1992; 1993) found that assertiveness and coalition building were related to degree and closeness measures of centrality. Typically, the general procedure involved in any measure of graph centralization is to look at the differences between the centrality scores of the most central points and those of all other points. In other words, centralization is the ratio of the actual sum of differences to the maximum possible sum of differences. It describes the extent to which the cohesion is organized around particular focal points. In sum, the primary purpose of a graph centralization measure is to express how tightly the graph is organized around its most central points. Another important measurement of structural relations is density, which describes the general level of cohesion in a graph. The density of a graph is defined as the number of lines in a graph, expressed as a proportion of the maximum possible number of lines (Scott, 2000). Although different measures of density can be used to evaluate the cohesiveness of a graph, a subgroup, a blockmodel, or an affiliation network (Wasserman and Faust, 1994), this study will focus on the measure of ties in the graph generated from network data.

The most direct way to study a social structure is to analyze the patterns and strength of ties linking its members. These ties linking nodes in a social system are used to explore how structural properties affect behavior beyond the effects of normative prescriptions, personal attributes, and dyadic relationships. They also provide opportunities and constraints because they affect the access of people and institutions to such resources as information and power. The debate on effects of strong ties and weak ties has been addressed by scholars (Granovetter, 1973; 1982; Nelson, 1989). Weak ties provide people with access to information and resources beyond those available in their

own social circle, but strong ties provide close support systems in some circumstances and are more readily available. McPherson, Popielarz and Drobnic (1992) found that weak ties and network connections that span greater distance in sociodemographic space are positively correlated with people leaving current groups and joining new ones. Nelson (1989) investigated the relationship between social networks and conflict in 20 organizations and showed that low-conflict organizations are characterized by higher numbers of intergroup strong ties, measured as frequent contacts, than are high-conflict organizations.

In the past two decades, many researchers have contributed to our understanding of networks by making efforts to improve network centrality measures (Freeman, 1979; Stephenson and Zelen, 1989; Friedkin, 1991), structural position (Michaelson and Contractor, 1992), network and algebraic models (Arabie and Boorman, 1982; Freeman, 1992; Pattison, 1993), analytic methods (Knoke and Kuklinski, 1982; Wellman, 1983; Marsden, 1990; Wasserman and Faust, 1994; Richards and Seary, 2000; Scott, 2000), computer software (Borgatti, Everett and Freeman, 1999), and graph visualization (Krackhardt, Blythe and McGrath, 1995; Freeman, Webster and Kirke, 1998; Freeman, 2000). Some researchers emphasize theory-driven development or applied network approaches to network-related theories. For instance, network exchange theories, which include power-dependence theory identified by Emerson (1962), Cook (1987) and their colleagues, and elementary-relations theory identified by Willer (1988) and his colleagues, concern how the shape and parameters of network structures of exchange relations affect the power of actors to extract valuable resources in their exchanges with others (Markovsky, Willer and Patton, 1988; Yamagishi and Cook, 1990; Skvoretz and

Willer, 1991; Cook and Whitmeyer, 1992; Willer, 1999). A few researchers use network approaches by examining stakeholder theory (Jones, 1995; Donaldson and Preston, 1995; Rowley, 1997), which explains how an organization functions with respect to the relationships and influences existing in its environment. Since social network analysis has become a major tool for sociological analysis and is used in disciplinary debates on a wide variety of issues, more network application to non-sociological theories can be expected in the future.

Researchers also use social network analysis to extend their understanding of many behavioral and social phenomena. Such analysis is used to study: community elite decision-making (Laumann and Pappi, 1973), power (Brass and Burkhardt, 1993), ethnographic study (Uehara, 1990), social influence (Marsden and Friedkin, 1994), social psychology (Friedkin, 1990; Gregory, 1996), economic sociology (Davern and Eitzen, 1995; Davern, 1997), innovation diffusion (Burt, 1987; Valente, 1995), organization study (Nohria, 1992), and behavior science (Brass, Butterfield and Skaggs, 1998). Social network analysis has even become an aid in conspiracy investigation (Davis, 1981). In addition, many sociologists have worked since the 1970s to expand network concepts into a comprehensive structural formulation by concentrating on studying the form of network patterns rather than their content (Boorman and White, 1976; Burt, 1982; Burkhardt and Brass, 1990; Breiger, 1991). Some structuralists analyze intra-organizational as well as interpersonal networks. Ibarra and Andrews' (1993) study, for example, explored the relative contributions of individual attributes, formal organization positions, network centrality, and network proximity in explaining individual variation in the perception of work-related conditions in an advertising firm. They suggested that

network factors shaped job-related perceptions over the effects of individual attributes and formal positions.

Some political sociologists employed social network studies to evaluate the political power that results from the position of interest groups and nation-states in the pattern of links. Domhoff (1978) examined the membership lists of thirteen elite social clubs and 17 policy-planning groups by using matrix algebra and found that the corporate-dominated Business Council stood in the central position, and most large U.S. firms had interlocks with each other in the network. Dye (1983) examined governing boards rather than memberships in three groups and found that corporate executives and directors were in key leadership positions. Burris (1992) found a high degree of overlapping leadership in the policy-planning network among twelve leading groups/organizations between 1973 and 1990 in the U.S. Kanter (1977) defined power in terms of the access to important resources provided by one's position within an organization. Burt (1977) presented a comprehensive treatment of the various conceptualizations of the link between network position and community power. Cook and Emerson (1978) reported findings from a laboratory study of four-party exchange networks that demonstrate a direct link between network position and level of power use. In addition, many scholars explored power networks by studying the private sector. Brass (1984) found that departmental membership was significantly related to individual power in a firm. In a cross-national comparative study, Scott (1991) revealed that networks of corporate power were different and could not be generalized across different societies/countries. In his comprehensive study, Mizruchi (1992) examined the political behavior of corporations against the variables of market constraints, corporate interlocks,

stock ownership, geographic proximity, and social ties. Results indicated that the presence of indirect ties between firms was more strongly associated with contributions to the same candidates than was the presence of direct ties. Few people deny that corporations are influential in politics, but fewer still know just how influential business is or what role its influence takes. However, by examining structural relations among municipal elites, political scientists revitalized the microanalysis of community power structures.

Some political scientists began to refocus their theoretical interests on the internal structure of relationships among community leaders, eventually coming to reconceptualize the basis of community power as interpersonal networks. Galaskiewicz (1979) found that elected officials, bureaucrats, and committees responsible for making certain political decisions take into account the opinions of various groups in the community that do become active, assess these actors' potential to form coalitions with other actors in the community, and then make decisions accordingly so as to minimize the level of conflict over the issue. In a study of Norwegian entrepreneurs, Levine (1993) found that networks linking entrepreneurs create new enterprises. In addition, networks that developed between the public and private sectors also promoted economic development. He also found the public sector played a new role—network broker. This new role, however, required public sector initiatives, provision of necessary resources, and active and equal participation among all parties involved in the development effort. Unfortunately, there is an absence of empirical study similar to Levine's that analyzes political-economic structures of power and dependency in local economic development.

The application of network methods to power structures produces new insights into domination and influence processes in local communities. Through network studies on power structures, the structural relations among community actors have been taken into account to fully understand how a community power structure operates. For many local officials, especially economic development professionals, social network analysis should be helpful when they allocate resources, make policy decisions, or solve economic (or social) problems.

Cost-benefit analysis

Cost-benefit analysis is a set of techniques that measures the economic benefits and costs of government programs and projects and has been used widely by decision-makers and analysts (Oxenfeldt, 1979). During the 1930s,[9] the U.S. federal government started using cost-benefit analysis to assess select public project expenditure decisions. Cost-benefit analysis spread to Britain in the 1960s as well as to other Western countries and to some less-developed countries in the 1970s. This technique was undertaken by federal administrative regulatory agencies for proposed major regulations and spread to several other levels of public decision-making, including the executive and legislative branches of the federal government as well as state and local governments in the 1980s and 1990s.[10]

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[9] The U.S. Flood Control Act of 1936 required that water resource projects be evaluated in terms of the different between estimated benefits and estimated costs (Thompson, 1980).

[10] Executive Order 12291 (February 17, 1981) requires U.S. regulatory agencies to prepare regulatory impact analyses for any regulations that are likely to result in annual effects on the economy of $100 million or more (Fuguitt and Wilcox, 1999).

Generally speaking, cost-benefit analysis has two major purposes, precedence and public acceptance, which are to improve efficiency and equity (Weimer and Vining, 1992). A policy is said to be efficient if it maximizes the total net benefits available to society, while the equity element of a policy is determined by whether the costs and benefits are fairly distributed among the various segments of society. Cost-benefit has traditionally focused on efficiency, in particular providing policy makers with an indication of the magnitude of net benefits associated with a particular project or policy. Economic efficiency is a measure of the net contribution of an activity or project to overall social welfare. Thus, economic efficiency is designed to answer the question of whether the redistribution of resources implied by a project results in the betterment of society. On the other hand, although cost-benefit is not specifically designed as a tool for evaluating equity, a cost-benefit analysis could also track the distribution of costs and benefits among the various segments of society. Cost-benefit analysis, when properly undertaken, will allow the analyst or policy maker to consider efficiency and equity issues and measure the magnitude of the difference between gains and losses. In other words, cost-benefit analysis measures the economic efficiency of the proposed policy aspects of the overall project desirability that may include such factors as sustainability, ethics, and public participation in the decision process and other social values. Thus, cost-benefit analysis informs the decision-making process, but it does not by itself make decisions.

Carrying out a cost-benefit analysis is a technical exercise involving numerous choices and calculations. The more complicated the decision being addressed, the more care should be taken to identify and measure key variables and to analyze them

appropriately. The following steps should be applied to the analytical process of a cost-benefit analysis.

1. The process of discounting that converts future values to present values. Because capital projects have economic lives that extend into the future, the value of time must be taken into account. In many applications of cost-benefit analysis, the analyst must measure the net benefits of projects or policies that generate costs and benefits over a period of time, with costs and benefits often occurring in different time periods. Cost-benefit analysis uses a discounting process to express all future costs and benefits in their present value equivalent. This takes place by discounting costs and benefits in each future time period and summing them to arrive at a present value. This process, however, gives rise to one of cost-benefit analysis's weaknesses. Because the discounting process calculates its results from the present generation's perspective, one needs to be concerned about intertemporal equity issues, i.e., to the fairness of the decision to future generations. In fact, costs and benefits that occur far into the future may be given little weight in traditional cost-benefit analysis (Thompson, 1980).

2. The choice of the discount rate. The discount rate is the rate by which benefits that accrue in some future time period must be adjusted so that they can be compared with values in the present. Choosing the correct discount rate for a cost-benefit analysis is important because society wishes to undertake a mix of public and private investments that maximize social well-being (Oxenfeldt, 1979). A zero rate means that the well-being of future generations is given equal weight to the well-being of the current generation. Hence, public policies that sacrifice current consumption in favor of future consumption essentially transfer wealth from the poorer current generations to the wealthier future

generations or vice versa. Since the wealth can be regarded as the sum of various net benefits, an appropriate rate should be adjusted for the fact that economic growth occurs. In the economic development process, where the marketplace drives private investments, activities by the public sector can displace private investment. To undertake an investment, the expected return on investment must cover all costs, including the rate of interest. A higher rate of interest adds more costs on investment. The longer the investment continues, the higher cost yield. In contrast, because most benefits will occur long into the future, a lower discount rate may bring investors to the break-even point sooner.

3. Calculating present values when time periods differ. The present value of a future benefit or cost can be found by using the discount rate, because the discount rate is generated for different time periods in the amount by which the value of future benefits and costs should be decreased to reflect the fact that present dollars have more value than future ones. It is therefore necessary to convert all of these dollar values to a common unit of measurement. The usual practice is the *present value,* which is defined as the date resources are first committed to the policy and involves the discount of future benefits and costs. Normally, the decision-makers or other policy stakeholders may want to know the simple sum of financial costs or revenues over time, perhaps to anticipate the expected future budgetary impact.

4. Risk and uncertainty and sensitivity (scenario) analysis in cost-benefit analysis. Uncertainty and risk may be prevalent in the process undertaking the analysis. Uncertainty exists when an individual does not know what will happen in the future or when there is data inaccuracy or measurement error. Risk appears when the relevant

probabilities of different outcomes/events are unknown. If the analyst and decision-maker believe that the uncertainty may have significant bearing on the analysis, then formal analysis should be undertaken. To analyze uncertainty for a single policy in a study, the most common practical procedure is the *selective sensitivity analysis* (Sassone and Schaffer, 1978: 142; Fuguitt and Wilcox, 1999: 111), which includes scenario analyses and may provide objectivity for present values. It demonstrates how the decision criterion (net present value) varies when select variables independently assume different values.

5. Dealing with costs and benefits. It is essential to consider all costs and benefits that may result from a policy and program. Researchers divide costs and benefits in many ways. Dunn (1994: 296-9), for example, classifies costs and benefits into four categories: 1) inside/internal vs. outside/external; 2) directly measurable/tangible vs. indirect measurable/intangible; 3) primary/direct vs. secondary; and 4) net efficiency/real vs. distributional/pecuniary. Since costs and benefits stem from policy effects and consequences, the accuracy of the analysis depends on correctly and thoroughly calculating those costs and benefits. In addition, distinguishing goods and services as costs and benefits is the difficult part of analysis, in particular when valuing costs and benefits. Some methods such as cost-effectiveness analysis can be used for those instances where benefits cannot be valued.

Cost-benefit analysis not only provides a means of comparing complex projects, .. even when benefits and costs occur during different time periods, but also allows analysts to go beyond the confines of a single policy or program. The measurement of costs and benefits in dollars as a common unit of value permits analysts to subtract costs from

benefits. On the other hand, cost-benefit analysis has some limitations. For example, monetary value is an inadequate measure of responsiveness because the actual value varies from time to time. Moreover, when market prices are unavailable for important goods such as clean air, analysts are often forced to estimate shadow prices, i.e., subjective estimates of the price that citizens might be willing to pay for goods and services. These subjective judgments may simply be arbitrary expressions of the values. In addition, the cost-benefit analysis often fails to identify the effects on different client groups, i.e. distributional effects.

In the past several decades, the social benefits of governmental activities have been increasingly questioned. Many people may ask if economic development money, for example, is best spent providing incentives to firms who locate in a city. Cost-benefit analysis has evolved to answer these and other issues of public policy. It provides a systematic means to enumerate all benefits and all costs, much like a private sector investment analysis. However, because cost-benefit analysis deals with concerns of public policy, it must consider classes of benefits and costs that are more far reaching than a business decision focusing only on net profits. Public officials should see cost-benefit analysis not only as a tool to make policy decisions but also to pursue the maximum net present value for the society.

CHAPTER III
RESEARCH DESIGN: QUESTIONS, METHODS, AND DATA

The methods used in this study are based on the following assumptions: the need to attract private capital and the power of business to intervene in city politics. In order to provide better and more services for citizens, cities need to increase revenues from all possible sources, particularly those cities with fiscal problems or a shortage of funding. Sales and property taxes contributed by the private sector are the major local sources or revenues. Cities, therefore, try to attract private capital. Second, the businesses will wield their power to influence public policies. Hence, power relations between government and businesses cannot be neglected in seeking explanations for the behavior of private and public organizations.

This study evaluates an economic development agreement from the following three perspectives: economic incentives, political power, and public-private networks. Many economic incentives have been used by state and local governments to implement economic development, defined operationally as a city's policy actions (promotional strategies and market interventions) aimed at creating jobs and increasing capital investment in the jurisdiction (Bowman, 1988; Basolo, 2000). If the short-term costs of attracting capital are less than the long-term benefits, local government will support a project and may invest public monies, e.g. tax rebate, to attract private investors. However, what if the long-term benefits brought from the investors no longer exist due to

subsequent private sector decisions, e.g. relocation, or what if the assumptions are simply wrong?

According to a 1984 economic development survey conducted by the International City/County Management Association (Bartik, 1991), tax-related incentives have been used by over 70% of U.S. cities. Although a number of studies have examined tax policies and proved their effectiveness for economic development, few of them used cost-benefit analysis as an analytical tool to determine if the program benefits outweighed the program costs (Bartik and Bingham, 1997). In order to examine the impact of incentives, I use cost-benefit analysis to evaluate the tax effects of an economic development agreement, both for city government and the firm. The costs and benefits of the program are expressed in dollar terms. The costs are defined as the government expenditures *directly* stemming from the agreement, while the benefits are defined as the government revenue *directly* yielded from the agreement. Through the cost-benefit analysis, it can be obtained whether city government really gains from a project, and whether the amount of financial incentives is appropriate to secure the benefits.

Economic development programs rarely involve policy or program evaluation, particularly those programs involving in power studies, before they are implemented. Bartik and Bingham (1997) suggested that a good economic development evaluation ought to involve comprehensive community impacts. Because economic development is highly sensitive to the political context (Giloth, 1991), evaluating an economic development program must deal with existing institutions and their roles in the decision-making process. According to Knoke (1990), some objective rationality theorists depict decision-making units (people or firms) as independent of other actors involved in

economic transaction decisions. They assume that a decision is always the choice of the highest utility among all alternatives. Governments sometimes make this type of decision by referring to their own analysis such as cost-benefit analysis. However, the decision-making cannot rely on simple cost-benefit calculations, but must take into account the environmental uncertainty of the decision-making process.

The more scarce and critical a resource, the more power flows to actors who can supply the resource to those who need it. Thus, external evaluations of government-business coalitions must take into account all possible power flows related to information exchanges and resources transactions. In general, actor power can be found to be a joint result of network position, which indicates how distant an actor was from resourceful actors in an exchange chain, and positional control of resources, following the patterns predicted by power-dependence reasoning. Using social network analysis for this research provides evidence of the dominant actors in an economic development agreement.

The people (actors) and their activities (events) in the public and private sectors are major elements of a social system, and they construct a structural network. Most research that has adopted network techniques emphasizes three significant types of structural relations: actor-actor relations, actor-event relations, and event-event relations (Knoke, 1990). Many studies focus on the first type because the inter-actor links make possible the formation of coalitions to engage in mutually advantageous collective actions. Actors usually become involved in one or more events because they may have similar interests in the event(s). In other words, they act to gain control of those events based on their interests.

There is a paucity of research addressing power measurements in public-private/ government-business networks, but social network technique appears to be a useful approach for the study's problem. Network structures – the size, shape, and types of connection – may affect the power of actors and, as a result, control exchanges of resources. This research uses social network analysis to focus on relationships between social entities (or actors). Using network techniques such as relational matrices and diagrams, I evaluate the relationships among actors to identify the distribution of power and influence in the public-private network.

Statement of the Research Objectives and Questions

Researchers claim that taxes play an important role in economic development. However, much of the research focuses on the state level. A number of researchers who have focused on the relation between job creation and tax incentives (Rubin and Wilder, 1989; Campbell et al, 1999), but few of them have measured the overall costs and benefits of public-private agreements in this area. Also, a number of public-private partnership projects have been cited as successful economic development projects, but few of studies have evaluated economic development programs based on a comprehensive cost-benefit analysis with varying scenarios.

This research had three objectives: 1) to examine and analyze the influence of network ties (or relationships) among private and public actors involved in a local economic development agreement; 2) to examine the final exchange agreement to determine net benefits to the city; and 3) combine the results from the analyses above to investigate the linkages between power in the process and policy (the agreement)

outcomes. The research involves descriptive as well as explanatory analyses as reflected in the following research questions:

1.1 Who are the stakeholders in the public-private partnership process?

1.2 Was any individual highly influential in the decision-making process?

1.3 Was any individual a bridge between the private and public sector?

1.4 Was power held disproportionately by an individual or by sector?

2.1 What are the full benefits and costs of the partnership agreement?

2.2 Does the public sector actually benefit from the exchange?

2.3 If yes, are the benefits accrued in the short term or in the long run?

3.1 Are power arrangements or the public interests driving the local economic development agreement?

This study evaluates the agreement as public policy. In addition, I posit that the structure of the public-private network will influence the partnership agreement. The results will provide evidence to explain the impact of network structure on an economic development project as well as the financial effects for both sectors. Moreover, I believe the findings will be helpful for city governments to assess the effectiveness of strategies and policies to stimulate economic development.

Study Population

Since this study proposes to evaluate an economic development agreement and to explore the interactions among partnership entities, the unit of analysis is an economic development program with embedded units – ties between public and private individuals. The single embedded study (Yin, 1994) includes the relevant individuals (their ties) in

city government and the private sector. The research objectives are based upon the dominant stakeholders who are related to or directly take part in this program (for example, council members who voted for this project, the city manager who represented city government and played a key role on the project, the representatives in the private firm, etc.).

Social network analysis requires a full-list of actors before further network data are collected from face-to-face interviews. In other words, a roster of network participants must be identified before full relational data are collected. I collected participants' names from archival data, documents, and five informal interviews conducted during the period of March 23 and April 5, 2000. The roster includes individuals from 1) business associations (e.g. the Carson Chamber of Commerce); 2) relevant city boards (e.g. planning commission, redevelopment agency, etc.); 3) boards of directors of private firms; and 4) persons identified through a reputation pilot survey.

Study Design and Methodologies

Carson was chosen for this study because it exemplifies a local government that has embraced the public-private partnership concept. In order to attract businesses, Carson works as a cooperative and business-friendly local government and provides many competitive incentives for businesses, such as tax abatement. Its economic strategies have attracted many corporations (e.g., IKEA, K-mart Corporation, Kenwood, Mercedes-Benz of North America, Nissan Motor Corporation, Pacific Bell, Pioneer Electronics, Target, and TRW). ARCO has been a major corporation in Carson for 70 years. Although many big companies choose Carson as their home, ARCO, historically

and economically, plays a major role among local businesses. For example, an ARCO representative has served as the president of the Carson Chamber of Commerce since 1994.

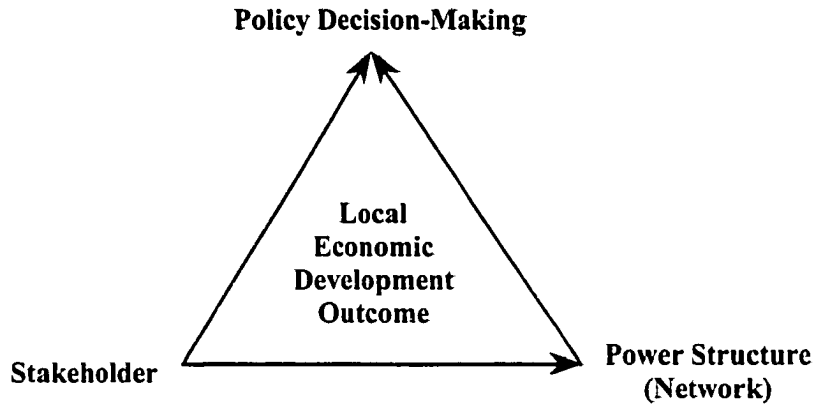
The study is designed to identify the network structures in a public-private partnership project and examine relationships within these structures and their impact on the economic development agreement. Furthermore, the research evaluates the agreement from a cost-benefit perspective. By applying both methods, I seek to gain a comprehensive understanding of the public-private partnership.

This case represents a unique, revelatory (common phenomenon in economic development but virtually absent in the literature), single case study. As a result, I seek to generalize the output to theory, but not to all economic development projects (Singleton, et al., 1999; Yin, 1994). For this research, the boundary of the network is the public-private partnership project, which includes all individuals that comprise the partnership network involved in the local economic development decision. The findings from this study will provide city decision-makers with valuable information about the connection between public-private partnerships and the network/structure conditions in a locality.

Constructs

Three major constructs relate to the outcome of an economic development project: decision-making, stakeholders, and power structure (see Figure 1). First, all jurisdictions make policy decisions at public meetings; however, less visible processes such as advisory or consultant deliberations also affect the decision-making process. It is

Figure 1 Construct Model



important to identify all individuals involved in the policy decision in order to understand the outcome of the process. Second, people who make decisions have a stakeholder role in the process. To find out who they are and what roles they play in the study project is central goal of this study. Third, the interactions among stakeholders, i.e. their relationships, create the power structure. This power structure is reflected in the network of ties among stakeholders. Therefore, the network structure can impact policy outcomes.

Decision-making process

A new polypropylene plant project was proposed in an internal meeting of ARCO on February 3, 1997. One and half years later, ARCO Products Co. (ARCO) submitted the project proposal to the Carson community development department of the Redevelopment Agency (the Agency) with a request for a tax subsidy. According to the California Revenue and Taxation Code Section 5108, "the governing body of a local

agency shall have the authority by a majority vote of that governing body to rebate some or all of the property tax revenue that the local agency would receive from economic revitalization of manufacturing property for a period of five fiscal years from the date the property was placed in service."[11]

Initially, ARCO asked for an $11.1 million rebate,[12] which represented the first five years of property tax on the new plant. This request was based on a cash flow analysis produced by ARCO Polypropylene LLC and an economic impact analysis completed by Ernst and Young LLP, a finance consulting company hired by ARCO. In the meantime, the Rosenow Spevacek Group (RSG),[13] an independent financial consulting company, was employed by the community development department of the Agency[14] to evaluate ARCO's proposal, in particular, the financial section.

The Economic Development Commission[15] (EDC) of Carson reviewed the ARCO proposal and RSG report. Based on this information, it voted 6-1[16] for the ARCO project and recommended that the Agency grant ARCO a much smaller tax rebate of $5 million. However, according to Carson's decision-making system, the Agency must review any project with or without EDC's recommendation. Although members of EDC were not

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[11] See California Revenue and Taxation Code Section 5108 (a).

[12] See Ilene Lelchuk " Arco asks Carson to donate $11 million for plant" *Daily Breeze*. p. A1 and A4. December 3, 1998.

[13] RSG has a long-term contract with Carson providing financial consultation for economic development projects like ARCO's.

[14] The Redevelopment Agency consists of same members as city council, which includes Mayor and four council members.

[15] The city council changed the title from Economic Development Committee to Economic Development Commission at April 4, 2000.

[16]Mr. Dick Cannon voted against the project. His company, Watson Land Company, has been in an action of real right with ARCO regarding property right in the past five years.

the final decision-makers, their support for this project was not taken lightly. After two public hearings and discussions in regular meetings, the Agency voted 4-0 with one abstaining[17] and approved the $5 million rebate on March 23, 1999.[18] Both Carson and ARCO signed the agreement on the same day. Table 1 shows the decision-making process in the ARCO-Carson project[19] outlined by key dates.

The decision to implement an economic development program is usually made by the city council in Carson. However, some departments in city hall review the project before submitting to the city council. They included the city manager, community development department, economic development department, and economic development commission. Seven entities were involved in the ARCO-Carson project (see Figure 2). Four of them were decision-making bodies, while the EDC and two consulting companies were advisory only. However, the community development department of the Redevelopment Agency and the economic development department of Carson were administrative entities in the process. Although neither department took part directly in the decision-making process by voting, their participation would play an important role in the project. The staff report, for example, written by the director of the economic development department, presented a positive comment to the Agency.

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[17] The abstaining vote was cast by city councilman Sweeney. He is a banker and won the council seat in March 4, 1997.

[18] Carson city council was reelected at March 2, 1999. Mayor Fajardo won his second term and new council members Frank and Ontal took seats left by Olaes and O'Neal, who were in favor of the project during the time ARCO presented the proposal to the city council.

[19] The name is adopted from the final agreement (see Agreement, March 23, 1999; City of Carson).

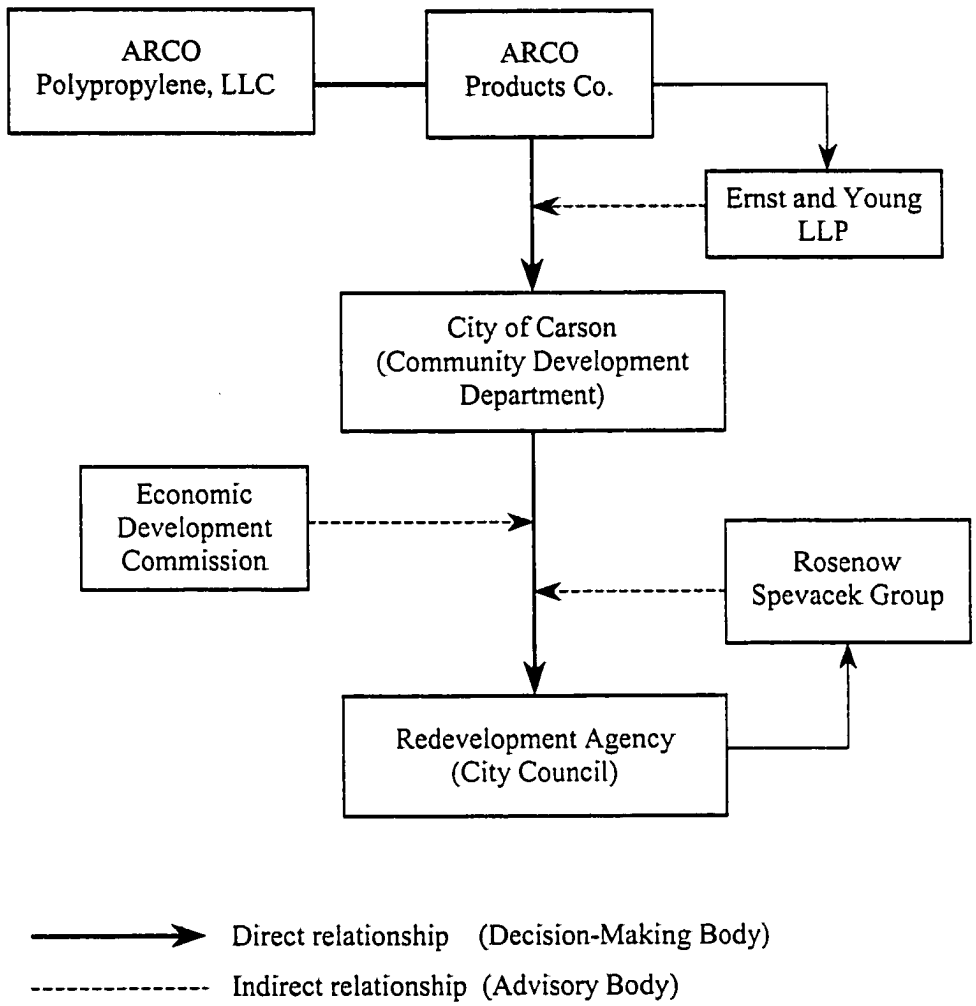
Table 1 Decision-Making Process of ARCO-Carson Project by Key Dates

Dates	Activities
02.03.97	ARCO planned to build the polypropylene plant in its internal meeting.
08.04.98	Pursuant to California Revenue and Taxation Code Section 5108, ARCO Products Company (ARCO) submitted the ARCO Polypropylene project proposal for $11.1 million financial assistance (tax rebate) to the community development department of Carson.
09.18.98	Ernst and Young sent the financial analysis report to ARCO and Rosenow Spevacek Group.
09.22.98	ARCO sent a follow-up letter to the community development department to request a review of this project.
10.01.98	RSG submitted the financial evaluation report to the Redevelopment Agency with recommendation of $5 million dollars in property tax rebate.
10.08.98	The economic development commission sent the recommendation letter to the community development department.
12.01.98	First public hearing and discussion by the redevelopment agency. The agency reserved the housing fund for the required 20% set-aside amounts, which was an estimated $2.2 million of this obligation.
12.15.98	Second public hearing and discussion by the redevelopment agency. The redevelopment agency decided to enter into negotiations with ARCO to provide a $5,000,000 rebate of property tax.
03.23.99	After holding a joint public hearing, the new redevelopment agency approved a $5 million tax rebate and over next 5 years to ARCO. The agreement was signed by both Carson and ARCO.

Stakeholders

The public policy domain can involve pricing, conditions, regulations, and provision of financial inputs to the economy. Hence, its participants typically include business corporations, social organizations, and governmental bureaucracies and legislative committees having primary authoritative responsibilities for these issues.

Figure 2 Decision-Making Process of ARCO-Carson Project



Some inner circle elites are more likely to be involved in business associations, governmental advisory boards, and financial support of political parties and candidates. These actors are assumed to be well-informed about the available alternatives and about the intentions and likely reactions of other actors in the decision situation.

A roster of the relevant participants including inner circle elites was constructed from information gathered during a site visit. Constructed by a free-recall (snowball) survey and documentary studies, the final roster revealed twenty-one people as key individuals in the network with respect to the project. The roster includes the mayor, two (former) city council members in the proposal review period, four city council members including the mayor pro tem during the approval term, the city manager, the (former) director of community development department, the director of the economic development department, six members of the economic development commission, the external affairs manager of ARCO, two officers from ARCO Polypropylene company, and two consultants. In other words, city council members involved in the voting process, city administrators, representatives of the private firms, and those advisory individuals are the stakeholders of the public-private partnership project. The full-list of 21 stakeholders in the ARCO-Carson project is shown in Table 2.

Power structure (Network)

Public officials exercise their power through local policy adoption. The literature in urban politics indicates that elected officials wield much power and use their policy positions to increase their power. One of the strategies public officials often adopt is to appoint key people to powerful positions within local government as members of various boards. Through the political process, public officials take an active role anticipating the needs, wishes, and potential coalition strength of different actors in the community. By receiving help, fiscally and politically, from community elites, the elected officials may gain power and increase the likelihood of their re-election. Once the connection between government and business is established, the private sector can become influential in the

Table 2 The List of Key Persons

Title or Position	Name
Mayor	Mr. Peter Fajardo
Mayor Pro Tem	Ms. Kay Calas
City Council Member	Mr. Daryl Sweeney
City Council Member	Ms. Lorelie Olaes
City Council Member	Ms. Mary Anne O'Neal
City Council Member	Ms. Raunda Frank
City Council Member	Mr. Manuel Ontal
City Manager	Mr. Jerome G. Grooms
Director of Community Development Dept. (EDC)	Mr. Patrick D. Brown
Director of Economic Development Dept. (EDD)	Mr. Lance Burkholder
Economic Development Commission	Mr. Emmanuel Ogunji
Economic Development Commission	Mr. C. Bradley Olson
Economic Development Commission	Mr. Don Kott
Economic Development Commission	Ms. Sharron D. King
Economic Development Commission	Mr. Michael Padilla
Economic Development Commission	Mr. Dick Cannon
President of ARCO Polypropylene LLC	Mr. Donald G. Strenk
CFO of ARCO Polypropylene LLC	Mr. James L. Barbour
External Affairs Manager of ARCO Products Co.	Mr. Walter W. Neil
Financial Analyst of Ernst and Young LLP	Mr. Ali Master
Partner and Consultant of Rosenow Spevacek Group	Ms. Felise Acosta

decision-making process in direct or indirect ways. Therefore, the private sector can possess power in the local policy process and may use it on issues related to its interests such as local economic development policy. For example, this research reveals that a representative of ARCO served as a member of the economic development commission

between 1992 and 1997. He stepped down from the commission while the project was under consideration. He was re-appointed in early 1999.

A local economic development project often involves multiple entities including local government, businesses, nonprofit organizations, etc. Public officials and business people interact with each other through public-private negotiation or cooperation. Interactions may involve political relationships stemming from government appointment, or interaction through business or social events; both types of connection can build the government-business network. The public and private sectors develop ties, often around different activities, which may result in power games. Power may increase or decrease for any member of the network depending on these structural ties. For example, the more ties one has, the more power one may possess.

A network approach to this study helps develop a better understanding of structural and related power relationships. Network ties include different properties depending on the nature of the ties. Some individuals have a tie to others through mutual interactions, such as social ties. These ties can be shown in a directed or undirected graph (Scott, 2000). According to Wasserman and Faust (1994), some principles of ties should be addressed:

1. Ties may be asymmetrical or reciprocal, differing in content and intensity.
2. Ties between two persons are often asymmetric in the amount and kinds of resources that flow from each to the other.
3. Ties are often important in terms of the time spent on them, the resources that flow through them, the ways in which they constrain other network members' activities, and the indirect access they give to the resources of third parties.

4. Network members can be tied indirectly as well as directly, so ties must be analyzed within the context of larger network structures.
5. Asymmetric ties and complex networks distribute scarce resources differentially.

There are three ways to present ties between and within positions (Wasserman and Faust, 1994). First, a density table/matrix, a useful way to summarize the ties between positions, is a matrix where individual actors have positions in the rows and columns and the values in the matrix are the proportion of ties that are present from the actors in the row position to the actors in column position (see Table 3 as an example). Second, an image matrix, a summary of the ties between and within positions, is coded as either present (completely one) or absent (completely zero) between each pair of positions. Third, a reduced graph indicates whether there is an arc from the node representing the row position to the node representing the column position in the image matrix.

In this study, I rely on network theory and methods concerning mutual ties and structure. I use a density table with a 21-by-21 matrix and calculate the matrix value that determines the density of ties. Using relational data from the survey, I identify three submatrices including project-related ties, business ties, and social ties. Based on the density table, I build an image matrix that includes three submatrices and calculate their values, which indicate the density of three types of ties. In addition, in order to classify the positions, it is necessary to count the number of ties from members of each position to other actors. These counts can be made by examining the sociomatrix with rows and columns permuted so that actors in the same position are adjacent in the permuted sociomatrix. The frequency of ties within each block shows the total number of ties

given and received by each position. They also determine the network cohesion and the centrality that indicates who is in the central position and has the most ties. The network centrality measure is presented under three classification methods, including degree, closeness, and betweenness. Attribute data regarding stakeholders' demographic background are also described.

Data Collection and Techniques

Social network analysis is considered by some sociologists to be more useful than the normative or structural models (Mizruchi, 1994). Network data can be obtained via surveys and questionnaires, archives, observation, diaries, electronic traces, and experiments (Marsden, 1990). As pointed out before, actors and their relationships are the major components of network data. This study considers a local economic development project with actors as stakeholders in the decision-making process. To clarify the actors and examine their relationships, I developed a two-step process of data collection. First, I conducted a preliminary study to develop a full list of actors and to collect the quantitative data for a cost-benefit analysis. Second, I conducted in-depth interviews with the roster members to collect attribute and network data.

During the preliminary study from March 23 through April 5, 2000, I collected archival records, reports, and the formal agreement between the City of Carson and ARCO. These materials were used as background information to frame the study and also as descriptive data to be analyzed in the dissertation. Other records such as memos were also collected from officials in Carson and ARCO. The following lists the various sources of data collected during the pilot field work:

1. Documents: Documents collected include:

   (1) Memoranda among city hall, private firm, city council, and related agencies and institutions;

   (2) Minutes of meetings in ARCO, city council, and within city hall;

   (3) Administrative documents, which contain project proposals, related reports such as internal evaluation reports and working papers both in Carson and ARCO; and

   (4) Local newspaper articles published by the *Los Angeles Times, Press-Telegram,* and *The Daily Breeze.*

2. Archival records: Archival records to be collected include:

   (1) Organizational records such as city government historical records on economic development;

   (2) Maps and charts: the location map of old and new polypropylene plants;

   (3) Lists of names from involved entities, including city professionals, the Carson Chamber of Commerce, the economic development commission, city council, etc.; and

   (4) Contextual data, e.g. census data in state, county and city, and important demographic, social, economic, environmental data.

3. Quantitative data: The quantitative data for the cost-benefit analysis comes from the following: 1) City Budget Book, 1997 -- 1999; 2) final agreement for the project; 3) financial analysis report by the Rosenow Spevacek Group; 4) economic impact analysis report by the Ernst and Young LLP; and 5) cash flow analysis by ARCO polypropylene LLP.

4. Interviews: Interviews conducted with key individuals include four in the first phase and thirteen in the second.

I used the list of rosters from the institutions and organizations, such as the city council and ARCO, and data gathered from interviews as instruments to build a list of stakeholders in the government-business network. Having obtained the data to develop the final list, I conducted in-depth interviews with thirteen people on the list. This structured interview instrument was prepared to ensure consistency in data collection. A letter, which serves as an introductory statement explaining this study (see Appendix II), was sent to interviewees in the first week of December, 2000. I contacted interviewees and arranged an interview schedule in the third week of December. The interviews were started during the second week of January 2001. During the one-and-half-month field period in Carson, I obtained thirteen people's cooperation in obtaining network data. It took an average of five visits per person to collect these data. Two persons who relocated outside of California finished the survey via e-mails. All interviews were tape-recorded and transcribed. In addition to the qualitative data to be analyzed contextually, the relational data gained from interviews were digitally coded to a matrix and processed with *UCINET*[20] to analyze network structure and to draw the network diagram in *KrackPlot*[21]. The network analyses are discussed in next chapter.

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[20] Borgatti, Steven, Everett, Martin and Freeman, Linton C. 1999. *UCINET V*. Natick, MA: Analytic Technologies Inc.

[21] Krackhardt, David, Blythe, Jim and McGrath, Cathleen 1995. *KrackPlot 3.0* Natick, MA: Analytic Technologies Inc. *UCINET 5.0* is designed to process and to analyze network data while *KrackPlot 3.0* is designed to interpret and visualize network diagrams.

A cost-benefit analysis was performed to examine the economic impact of this project. Having collected the quantitative data, I followed the techniques of cost-benefit analysis to analyze the demand (of ARCO) or supply (of Carson) of tax rebate, costs, and benefits. I used a spreadsheet program to compute two analyses in 15-year and 30-year terms of review. Some decision criteria such as net present value and internal rate of return are also used and interpreted to determine the outcome of the cost-benefit analysis. Since this analysis serves as a policy (tax rebate) evaluation, the uncertainty and risk associated with the discount rate may generate a bias when computing present value of costs and benefits. To avoid this problem, I used another software program, *@ RISK*[22], to determine the values of certain variables, such as the discount rate and market price of a new product, by using simulation modeling to compute risk. The results of this analysis are compared to the outputs of the analyses conducted by Carson and ARCO in order to ascertain any difference in the effects of the $5 million tax rebate with respect to both sectors.

Study Limitations

The criteria for interpreting the findings and countering known threats to validity include construct validity, internal validity, external validity, and reliability. They are addressed as follows:

First, construct validity: In order to prevent threats to construct validity, I have developed an operational set of measures consistent with established measures and logic and have reviewed these measures with individuals familiar with local economic

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[22] *@RISK 4.0*. 2000. Newfield, NY: Palisade Corporation.

development and urban politics. Some measurements on variables from other literature/research were also reviewed, and some unrelated questions were removed while some reliable questions and items were added. To reduce measurement errors, this study is as precise and specific as possible when defining the content of the network being studied. In addition, the select group of stakeholders may not be accurate due to the bias of lists of boards and associations, the reputation survey, and so on.

Second, internal validity: Multiple sources of evidence may be needed in order to identify a logical chain of evidence to increase confidence in the validity of my measures. Also, recalling former experiences is hard for most people, particularly in an interview situation, so I provided cues to help the respondents (Knoke and Kuklinski, 1982).

Third, external validity: The threats to external validity are obvious due to the single-case approach. Instead of generalizing to another economic development project (at another location), this study generalizes to theory (power and network), and that is the goal of the research.

Fourth, reliability: The major threats to reliability are that inter-network links will not be in agreement (similar to intercoder reliability). The other threat to reliability is the way that people define "do business directly" or "socialize." Although a further and clear definition, or clarification, was distributed to the interviewees, errors may still exist. Moreover, interview questions may not capture all perspectives of business behaviors and social activities. Further study may reveal more indicators, which will produce a more reliable scale/index.

CHAPTER IV
NETWORK ANALYSIS

Social network methods were applied throughout data collection and analyses in this study. I used network methods to: prepare the roster (list of network members), formulate questions for members, collect data from members, and analyze the data. The roster was established by preliminary field research (Spring 2000) involving snowball sampling, newspaper accounts, and official sources such as agency directories and documents. Names were added to the list until no new names were mentioned by any sources. Interview questions were designed to capture a variety of ties including social and business relationships. Data were collected through personal interviews with the network members. A card listing all members of the network was prepared for each type of interaction (questions about a series of potential social and business interactions were asked). Responses to each question were recorded on the cards, and data were entered into a density table with a 21-by-21 matrix. Using these relational data, I calculated the density and centrality of ties in the network.

Using data collected from field work, this section presents two types of analyses. First, in addition to the background introduction in this unique case, a descriptive analysis about local politics in Carson is presented. This qualitative interpretation provides an understanding of the nature of the local political economy. Second, using relational data I collected from interviews, a comprehensive network analysis including network

measurements and diagrams is presented. By examining structural relationships qualitatively and quantitatively, the network analyses present the evidence that contributes to the literature of urban politics and economic development.

Network Data

In order to simplify the analyses, I classified the data in two ways: relational data, which refer to those used in *UCINET*, and attribute data, which represent those not being used in *UCINET*.

Attribute data

Located in the South Bay section of Los Angeles County and incorporated as a General Law city on February 26, 1968,[23] Carson has grown from a population of 61,000 in 1968 to 89,010 in 2000.[24] Carson operates under the Council-Manager form of government. Policy making and legislative authority are vested in the governing council, which consists of an elected mayor and four council members. Council members are elected to four-year, staggered terms with two members elected every two years, while the mayor is elected for a two-year term.[25] The city council is responsible for passing ordinances, adopting the budget, appointing committees and hiring the city manager and the city attorney. The city manager is responsible for carrying out the policies and ordinances of the city council, for overseeing the day-to-day operations of the city, and for appointing the heads of the city's departments.

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[23] See the Comprehensive Annual Report of Carson, 1998.

[24] Data from the U.S. Census of Bureau.

[25] These decisions were voted by Carson citizens in April 14, 1992.

Like many cities in the Los Angeles metropolitan area, Carson is a culturally diverse community. According to the 2000 census data, the city population is 89,010,[26] including 23,049 (25.7%) whites, 22,084 (25.4%) blacks, 20,705 (23.1%) Hispanics or Latinos, and 23,172 (25.8%) Asians and others. A city like Carson, perhaps "the most extreme example of diversity,"[27] may be representative of suburban cities that are becoming increasingly diverse. The remarkable ethnic variety in Carson also is reflected in city politics and leadership in City Hall. The five council members usually consisted of white, black, and Asian-Americans in the past twenty years. On March 6, 2001, Ms. Kay Calas, a white woman, won her 25th consecutive council seat. Mr. Daryl Sweeney, a black man, won the Mayor's seat in the same election after serving two terms as a councilman. The incumbent Mr. Manuel Ontal, former councilwoman Ms. Lorelie Olaes and former mayor Mr. Peter Fajardo, are Filipino-Americans. During the 1990s, the city council was occupied by one white, two blacks, and two Filipino-Americans. In Carson's politics, it seems that there is racial tension between some members of Carson's African-American and Filipino communities.[28] The city manager's contract even became a target between two groups.[29] Because of its notorious politics, Carson set up one of its visions

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[26] Compared to 81,211 of 1980, and 83,995 of 1990.

[27] See Mark Sappenfield. "America's melting pot spreads to the 'burbs: Upward mobility wins new ground for diversity." *The Christian Science Monitor*. August 10, 1999. In http://www.csmonitor.com/durable/1999/08/10/pls2.htm.

[28] See Mary Moore "In a changing of the guard, Carson mayor promises harmony," *Daily Breeze*, March 21, 2001, p. A1.

[29] Mary Moore "Carson takes on several projects," *Daily Breeze*, March 19, 2001, p. B1 and B2.

to achieve the goal of "a city with a balanced ethic and cultural mix living together in harmony and prosperity."[30]

Located in the heart of the powerful economic engine of Southern California, and consistent with its business-friendly environment and excellent location (with a few miles of three airports, two sea ports, one railroad expressline,[31] and four major highways) the city attracts international corporations such as BP, IKEA, NEC, Target, and Toyota; it has become a well-known industrial center in the region. In order to offer a development climate for potential businesses, Carson provides many economic incentives, including no utility user taxes, low business license fees, no city property tax, no gross receipt tax, no parking tax, as well as many administrative services.[32] As reflected in publication, *Carson Vision*,[33] the city not only promotes the advantages for businesses, but also has the potential to provide incentives for business retention and to new businesses to move into Carson. The city views raising employment opportunities and development of the labor force as major priorities to promote sustainable economic development.

According to Shannon Dean, manager of corporate communications for California Water Service Company and President (for the year 2000) of the Carson Chamber of Commerce, "as a community, Carson understands the importance of proactively supporting its businesses. When you look at the large number of *Fortune 1,000*

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[30] City of Carson. "*Carson vision.*" the Department of Community Development, p.7. September 2, 1997.

[31] Los Angeles International Airport, Long Beach Airport, Orange County (John Wayne) Airport, Port of Long Beach, Port of Los Angeles, and MetroRail (Alameda Corridor).

[32] Incentives were listed on the brochure published by the Business Development Department of Carson, March 2001.

[33] City of Carson. "*Carson Vision.*" Department of Community Development, p.7-8. September 2, 1997.

represented here, you can't help but be impressed. Obviously, they're [city officials] doing something right."[34] Apparently, Carson's economic efforts are successful. Therefore, in order to find out the government-business network behind Carson's success story, the network analysis focused on the stakeholders from this case study to explain who creates the business-friendly atmosphere in the community.

Relational data

The interview instrument used in the preliminary study serves as the starting point for the development of this study's interview questions. During the interviewing, a questionnaire including 20 questions (see Appendix II) and a card with a list of stakeholders except the interviewee were distributed to each individual. The questions include two introductory questions, three project-related tie questions, two business tie questions, five social tie questions, six demographic questions, and two wrap-up questions. This section presents the demographic background and general characteristics of interviewees.

During the interview period, there was a local election ongoing in Carson. Two council members, Calas and Sweeney, who were running campaigns refused to participate in this study. The mayor of Carson was being held at the Metropolitan Detention Center in downtown Los Angeles due to a probation violation.[35] According to

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[34] Steve Stelpflug. "Focus on the city of Carson." *The Long Beach Business Journal*. p.1-14. October 2000.

[35] Mayor Fajardo was sentenced to a year of probation under a federal charge of illegally collecting attorney's fees in a Social Security dispute in July 2000. He took off to the Philippines in late November 2000 and returned home in late January 2001. He was arrested by U.S. marshals on February 1, 2001. See Matt Krasnowski "Carson mayor gets probation." *Daily Breeze*. p. A1 and A5. July 1, 2000. Also see Mary Moore "Mayor's attorney refutes escape plans." *Daily Breeze*. p. A3 and A4. February 7, 2001.

an article in the local newspaper,[36] he was blasted by critics for alleged nepotism and racial bias in the city's hiring policies and commission appointments. Despite substantial efforts, I was unable to track down two former council members, Olaes and O'Neal. One current councilman, Ontal, and city manager, Groomes, felt uncomfortable speaking with me regarding their so-called "sensitive issue" and failed to connect with me (after scheduling over ten times). In addition, one EDC member, Cannon, who voted against the project, refused to answer any of my questions due to his long legal battle with ARCO. As a result, I obtained almost full cooperation from people in the private sector (10 of 11) and received a low response rate from public officials (3 of 10).

The population of the relational data is twenty-one with eight missing persons. The missing data are due to refusals to participate by six council members, one administrator, and one EDC member. This study identifies a tie as a relation between two people. Under the network design of an undirected graph, therefore, ties identified by respondents existed even though the other person was missing. In other words, the only missing data are ties between missing people. Thus, the missing data are 28 out of all possible ties, which are 210. The main matrix data can be analyzed by approximately 87% reliable data.

The following analysis is based on interview data I gathered from thirteen people, including ten male and three female (see Table 3). The average age among them is fifty. Because city residence is not required for elected and appointed officials, there was only one council member and one EDC member living in Carson. When asked about personal

[36] See Mary Moore "U.S. marshals arrest Carson mayor," *Daily Breeze*, February 2, 2001, p. A1 and A11. Also see City news service, "Carson's mayor arrested", *Press-Telegram*, p. A7. February 2, 2001.

Table 3 Demographic Information for Those Interviewed (N=13)

Gender	Ave. Age	Residence	Political view
10 male	50	2 yes	7 middle of the road
3 female	(38 min. 70 max.)	11 no	4 conservative
			2 liberal

political views, the majority of the respondent group (7 of 13) answered they are "middle of the road," compared to four conservatives and two liberals. Administrators are two full-time city employees, while city council and EDC members are part-time and voluntary in Carson.

In accordance with the Carson municipal code, vacancies and replacements to commissions can be filled by the Council member who nominated that person during his/her term of office. The mayor, with ratification by the city council, can make any remaining appointments beyond the initial membership of five for the various commissions. The economic development commission,[37] for instance, consists of nine members responsible for planning strategies for attracting business and industry to the city and creating a positive image and atmosphere for business and industry in the city. There is no term limit for appointed members. For example, Mr. Don Kott has been serving as an EDC member since 1987 while Ms. Sharron King spent five years in the public relation commission and five years in the EDC from 1991 to 2000. Table 4 shows current occupations and positions held by stakeholders in Carson.

[37] The Carson City Council changed the name of EDC as "C" refers from Committee to Commission on April 4, 2000.

Table 4 List of Current Occupations and Positions held by Stakeholders in Carson

Name	Current Occupation (Outside of City Duty)	Elected or Appointed Time and Position in Carson
Mr. Peter Fajardo	N. A.	Council: 1993-1997; Mayor: 1997-2001
Ms. Kay Calas	President of Calas Investments Co.	Council: 1976-2005. Mayor: 9 years in 70s and 80s.
Mr. Daryl Sweeney	Banker	Council: 1997-2001; Mayor: 2001-2005
Ms. Lorelie Olaes	N. A.	Council: 1993-1997
Ms. Mary Anne O'Neal	N. A.	Council: 1993-1997
Ms. Raunda Frank	Attorney	Council: 1999-2003
Mr. Manuel Ontal	N. A.	Council: 1999-2003
Mr. Jerome G. Grooms	City Manager of Carson	City Manager: 1997-2004
Mr. Patrick D. Brown	Planning Consultant	Community Development Director: unknown-1999
Mr. Lance Burkholder	Economic Development Director	Economic Development Director: 1995-2001
Mr. Emmanuel Ogunji	Financial Manager	EDC: 1993-2003
Mr. Richard D. Cannon	President and CEO of Watson Land Co.	EDC: 1999-2001
Ms. Sharron D. King	General Manager of Pavillion Management, Inc. (Mall)	PRC: 1991-1995 (Public Relation Commission) EDC: 1995-2003
Mr. Don Kott	President of Don Kott Ford	EDC: 1987-2003
Mr. Michael Padilla	Real Estate Consultant of Camino Realty Co.	EDC: 1995-2001
Mr. C. Bradley Olson	Director of Program in Real Estate at Cornell University, NY	EDC: 1993-1999
Mr. Walter W. Neil	External Affairs Manager of BP Co.	EDC: 1991-1997; 1999-2003
Mr. Donald G. Strenk	Vice President of BP Asset Management Co.	N. A.
Mr. James L. Barbour	Vice President and CFO of ARCO Polypropylene LLC.	N. A.
Mr. Ali Master	Senior Financial Analyst of Ernst and Young LLP.	N. A.
Ms. Felise Acosta	Principal and Partner of Rosenow Spevacek Group Inc.	N. A.

During the interviews, most respondents acknowledge they were involved in the decision-making process related to the project either directly or indirectly. The elected and appointed officials played the decisive (council members and staff) and supportive (EDC members and financial consultant) roles. In the private sector, however, the external affairs manager, Mr. Walter Neil, was the only representative who dealt with the city with respect to the project.[38] Over ten years in his position, Mr. Neil has built many connections many local and regional agencies in the community. In addition, the majority of the group (11/13) indicated Mr. Neil is the person who played the key role in gaining approved for the project, in addition to the city council members who voted for the project.

The city often implements local economic development by partnering with businesses. All respondents agreed public-private partnerships are a good way to achieve economic development goals in Carson. In fact, the city is aware of the importance of cooperation with "state and regional agencies"[39] and "local businesses,"[40] which offers growing employment and business opportunities and supports through promotion of its strong local economy. The department of economic development has actively implemented economic development through public-private partnerships in the past few

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[38] The president and chief financial officer were newly appointed to the new company, ARCO Polypropylene LLP, established in 1997, and they were new to the City.

[39] Carson Vision, Guideline principle 4: "Coordination of Economic Development within the region." City of Carson, p.7, September 2, 1997.

[40] City of Carson Economic Development Strategies; Goal 1, Objective 4: "Development an up-to-date database, of all businesses in the City, designed to create economic development intelligence information and share this material with local businesses to promote intra-city trade," in *Existing Conditions Report for the General Plan Update*, City of Carson, April 2000.

years. For example, similar to the ARCO case, three residential development projects, eight commercial development projects, four mixed-use projects, and nine industrial development projects have been undertaken through public-private partnership since 1997.[41]

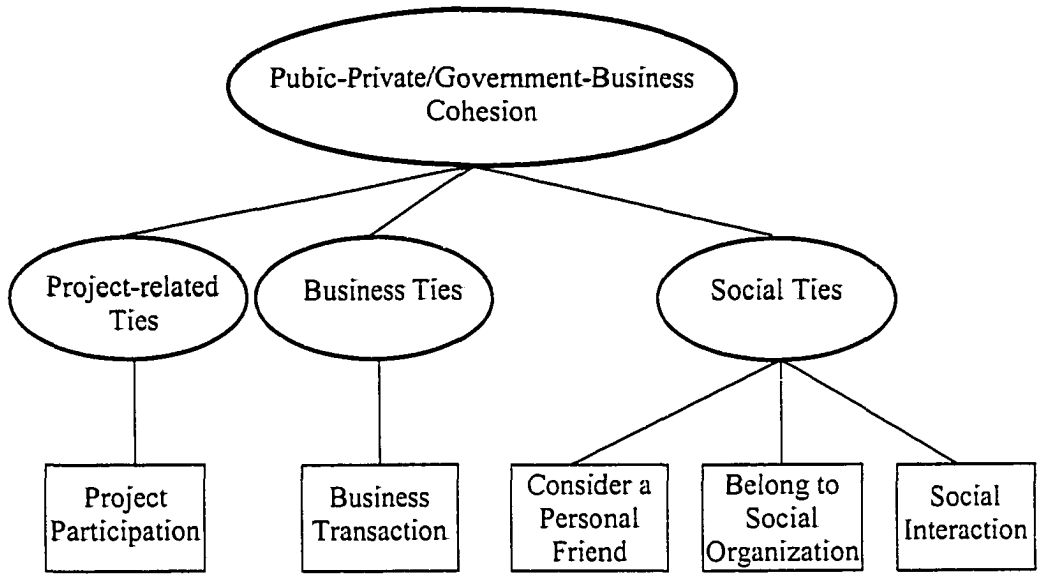
Public-Private Cohesion

Using the relational data, I calculated the density and centrality of ties in the network. As mentioned earlier, the network data are divided into three parts including project, business, and social networks. The project-related tie questions concern the project decision-making process and identify people who were involved in this process, while the business tie questions indicate people who have done business with each other and the intensity of their interactions. The social tie questions concern personal and social relationships among the actors and the frequency of those interactions (see Figure 3).

For each question, I developed a 21-by-21 matrix with lists of members' names in the rows and columns. The answers to all of the questions were either "Yes" or "No." The score is recorded as "1" if the interviewee responded "Yes," otherwise "0" was be recorded. For example, if A answers he does business with B, C, D, E, H, Q, and S, the relevant seven cells in row A would be coded as "1". In the meantime, the other 14 cells in row A will be coded as "0". In other words, the dataset contains binary values, with a "1" standing for the occurrence of a tie from actor *i* to actor *j*, and a "0" standing for the absence of such a tie between the pair. Binary matrices are also called adjacency

[41] Economic development status report, the Department of Economic Development, City of Carson, March, 2000.

Figure 3 Public-Private Cohesion



matrices (Scott, 2000), because they reveal whether or not any two points in a corresponding sociogram are adjacent. The following network analyses are based on a set of adjacent matrices.

Density measurement

For each relationship, I measure the density of the network with the following (sum of all entries in the matrix, divided by the possible number of entries):

$$\Delta = \frac{\sum_{i=1}^{21} \sum_{j=1}^{21} x_{ij}}{21\,(21-1)}$$

Density measures are calculated for all three types of ties and suggest: 1) For project-related ties, the higher the density, the more people directly communicated with each

other with respect to the project; 2) For business ties, the higher the density, the more individuals in the network do business together; 3) For social ties, the higher the density, the more network members act directly with other members socially. Based on the calculated matrix data in *UCINET*, the densities of the three ties are: *.4238* for project ties, *.1667* for business ties, and *.0190* for social ties (see Table 5). For project ties, stakeholders were communicating fairly often with each other regarding the project. Through many regular meetings such as council meetings, EDC meetings, and informal discussions among city staff and ARCO representatives, the stakeholders had multiple interactions and communications with respect to this project. This implies the public and private sectors openly share project-related information during the partnership building process. As for the business ties, the density value is low at *.1667*, which indicates that few of the stakeholders do business together. The business network would not be a tight network unless it involves only a few individuals. Probably because of the variety of individuals' occupations/businesses in this case, stakeholders are not tightly bound in business relationships. The density of social ties (*.0190*) illustrates that stakeholders do not interact much with each other socially. The social tie measurement may not be reliable if respondents withhold the truth because they view the question as intrusive. In addition, a low density value of social ties can be expected when participants are not living in the same geographic area. According to the attributes of stakeholders, there are only two people living in Carson, which may explain their low social interaction.

Centrality measurement

I measured centrality by computing the frequencies of ties in three questions, including information exchange about the project, business transactions, and social

Table 5 Density Measurements in Three Ties

	Density
Project Ties	.4238
Business Ties	.1667
Social Ties	.0190

interactions. The actor degree centrality is calculated as the sum of all entries in the matrix:

$$C_D(n_i) = \sum_i x_{ij} = \sum_j x_{ji}$$

Each actor receives a score of centrality. A higher score represents a greater degree of centrality. Higher centrality is associated with higher levels of power. A group degree centrality index, which represents the collection of actor degree indices, can be summarized as follows:

$$C_D = \frac{\sum_{i=1}^{21} [C_D(n^*) - C_D(n_i)]}{(21-1)(21-2)}$$

where $C_D(n^*)$ is the largest observed value.

A higher group centrality score indicates that a single actor is highly central. Group centrality measures allow for comparison across networks and are a measure of the heterogeneity of the individual centrality scores. In other words, it is a measure of the dispersion or range of the actor indices, since it compares each actor index to the maximum attained value (Wasserman and Faust, 1994). Freeman (1979) also provided two views of actor centrality, including closeness and betweenness centrality. Based on

closeness or distance, the closeness centrality focuses on how close an actor is to all other actors in the set of actors. It indicates that an actor is central if s/he can quickly interact with all others. The closeness centrality is calculated as follows:

$$C_C = \frac{\sum_{i=1}^{21} [C_C(n^*) - C_C(n_i)]}{(21-1)(21-2)/2 \times 21 - 3}$$

where $C_C(n^*)$ is the largest standardized actor closeness, and

$C_C(n_i)$ is the inverse of the sum of the distances from actor i to all the other actors.

$$C_C(n_i) = \left[\sum_{j=1}^{21} d(n_i, n_j) \right]^{-1}$$

Provided by Freeman (1979), another view of centrality is betweenness centrality, which indicates that an actor is central if he or she lies between other actors on their geodesics. It also implies that the actor will have a large betweenness centrality if s/he is between many actors via their geodesics. The betweenness centrality can be calculated as follows:

$$C_B = \frac{2\sum_{i=1}^{21} [C_B(n^*) - C_B(n_i)]}{(21-1)^2(21-2)}$$

where $C_B(n^*)$ is the largest realized actor betweenness index for the set of actors, and $C_B(n_i)$ is the sum of the estimated probabilities over all pairs of actors excluding the ith actor while g_{jk} is the number of geodesics liking the two actors.

$$C_B(n_i) = \sum_{j<k} g_{jk}(n_i)/g_{jk}$$

The betweenness centrality can be measured to compare different networks regarding the heterogeneity of the betweenness of the members. An actor with relatively low degree may play an intermediate role and so be very central to the network.

The group centrality scores from each type of network are compared to assess the possibility that an individual actor is powerful in all three networks. Three types of centralities in the three networks were calculated using *UCINET*. Table 6 shows the centrality measurements for these ties. First, the high degree centrality of project ties (*.6368*) and business ties (*.7553*) indicates that a single actor is highly central in the network. The degree centrality of social ties (*.2447*) explains that the majority of actors were inactive with each other in the network. In other words, it is unlikely that a single actor is central in the social network. Second, the high closeness centrality of project ties (*.7435*) reveals that an actor was close to other actors and s/he could quickly reach other actors. Most actors were actively participating and interacting with each other with regard to the project issues. Actors, relatively, were not close to each other through business transactions (*.2970*) and social interactions (*.0228*). Third, the betweenness centrality of business ties (*.4900*) shows that a particular actor lies between the various other actors in the network while there is no similar sign found in the project network (*.1978*) and social network (*.0526*). The next section with diagrams identifies central individuals in three networks.

Government-Business Networks

Using the density and centrality outcomes of *UCINET*, I worked in *KrackPlot* to draw the diagrams to visually present the distribution of actor positions and relationships.

Table 6 Centrality Measurements in Three Ties

	Centrality		
	Degree	Closeness	Betweenness
Project Ties	.6368	.7435	.1978
Business Ties	.7553	.2970	.4900
Social Ties	.2447	.0228	.0526

Three network diagrams representing project, business, and social ties networks are presented in this section. As a requirement of the program, different name labels are assigned to individuals (see Table 7).

Table 7 Labels Represented in the Networks

Name	Label	Name	Label
Mr. Peter Fajardo	Mayor	Mr. Emmanuel Ogunji	EDCJ
Ms. Kay Calas	ProTem	Mr. Richard D. Cannon	EDCC
Mr. Daryl Sweeney	Coun3	Ms. Sharron D. King	EDCK
Ms. Lorelie Olaes	Coun1	Mr. Don Kott	EDCT
Ms. Mary Anne O'Neal	Coun2	Mr. Michael Padilla	EDCP
Ms. Raunda Frank	Coun5	Mr. C. Bradley Olson	EDCO
Mr. Manuel Ontal	Coun4	Mr. Walter W. Neil	EAM
Mr. Jerome G. Grooms	CMgr	Mr. Donald G. Strenk	Presdt
Mr. Patrick D. Brown	DirCD	Mr. James L. Barbour	CFO
Mr. Lance Burkholder	DirED	Mr. Ali Master	EY
Ms. Felise Acosta	RSG		

Project network

Figure 4 shows the project network where there are two actors highly central, the economic development director of Carson, and the external affairs manager of ARCO. During the entire project procedure, the director of the economic development department was responsible for staff reports, consultant information for council members, and negotiation with ARCO. The external affairs manager of ARCO served as representative for ARCO Polypropylene in this project and dealt with public officials in the entire procedure. In addition, the retired director of the community development department and one EDC member were also active in the partnership process.

Business network

Figure 5 presents the business network where an actor is highly central. Similar to the project network, the director of the economic development department maintains a good business relationship with actors in the network except for three businessmen from ARCO. However, since he is a full-time employee in city hall, he must interact with elected officials and EDC members simply to do his job. Another actor with many connections to other actors is a 14-year EDC member, a "super" car dealer.[42] Many actors have done business with him for car purchases.

Social network

Figure 6 shows the social network where there is no central actor. Although the director of the Economic Development Department socially keeps a few relationships with some actors, the data are too sparse to conclude that a social network exists among

[42] His business includes new and used car sales involving eight American brands.

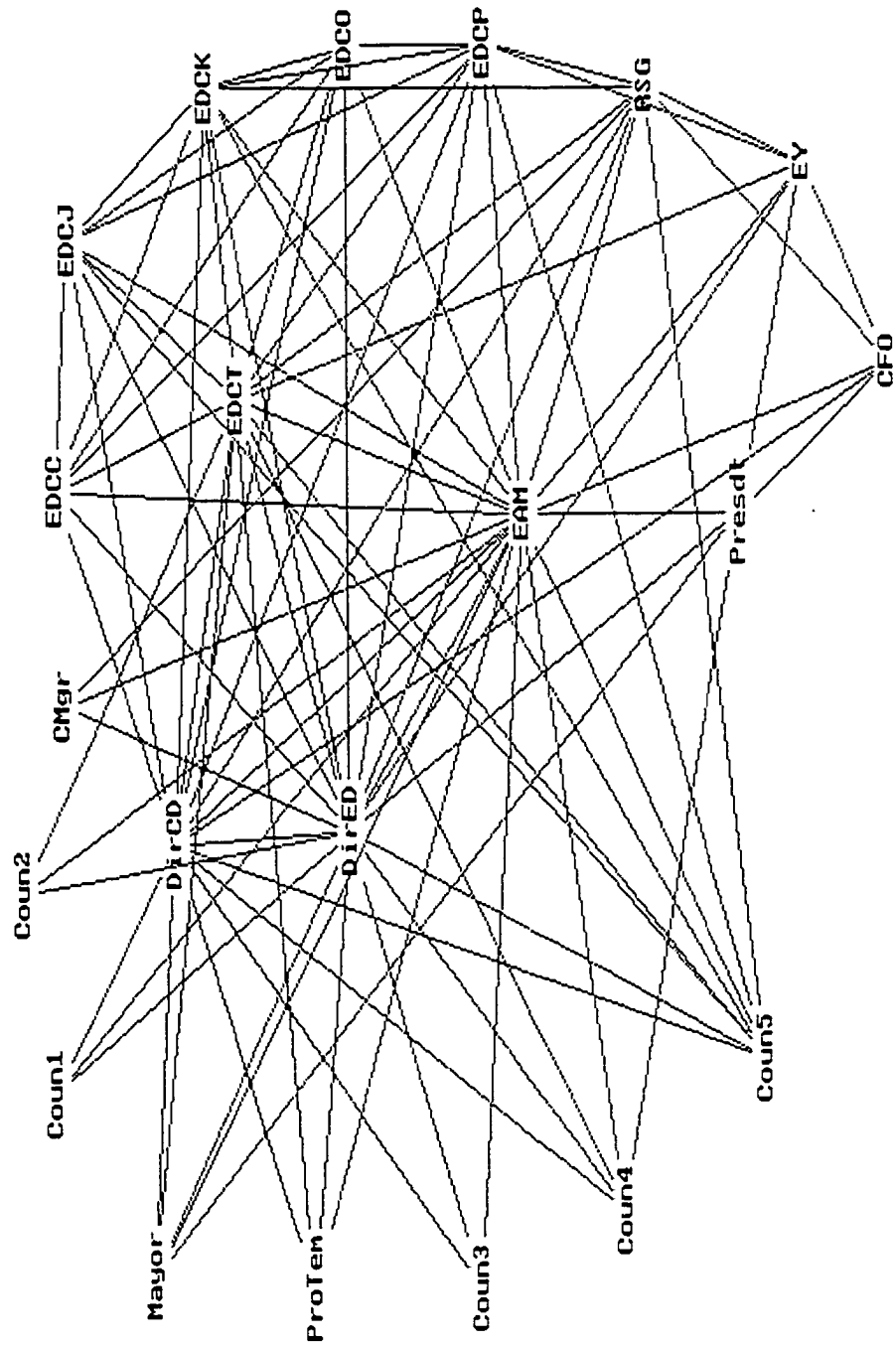


Figure 4 Project Network

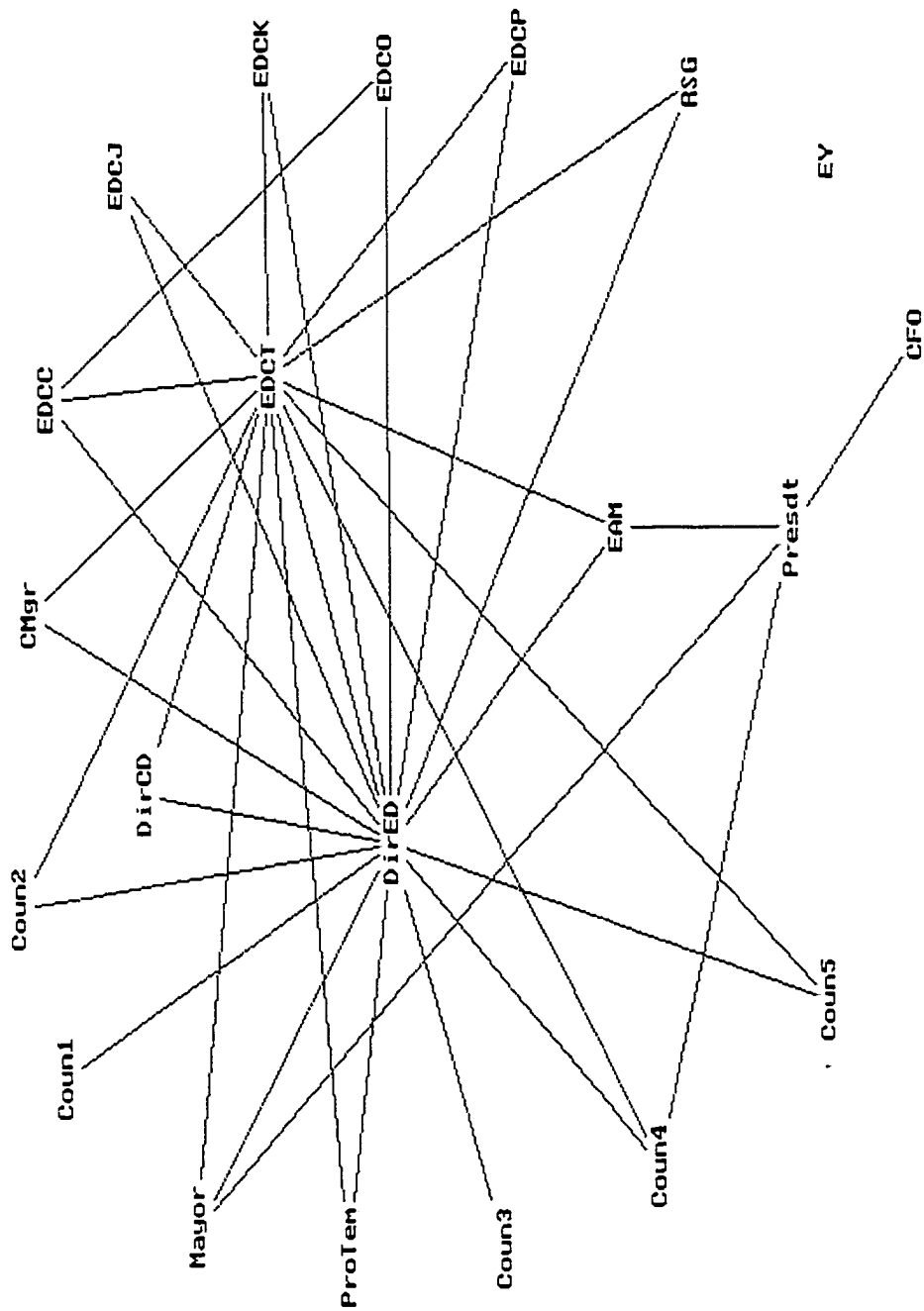


Figure 5 Business Network

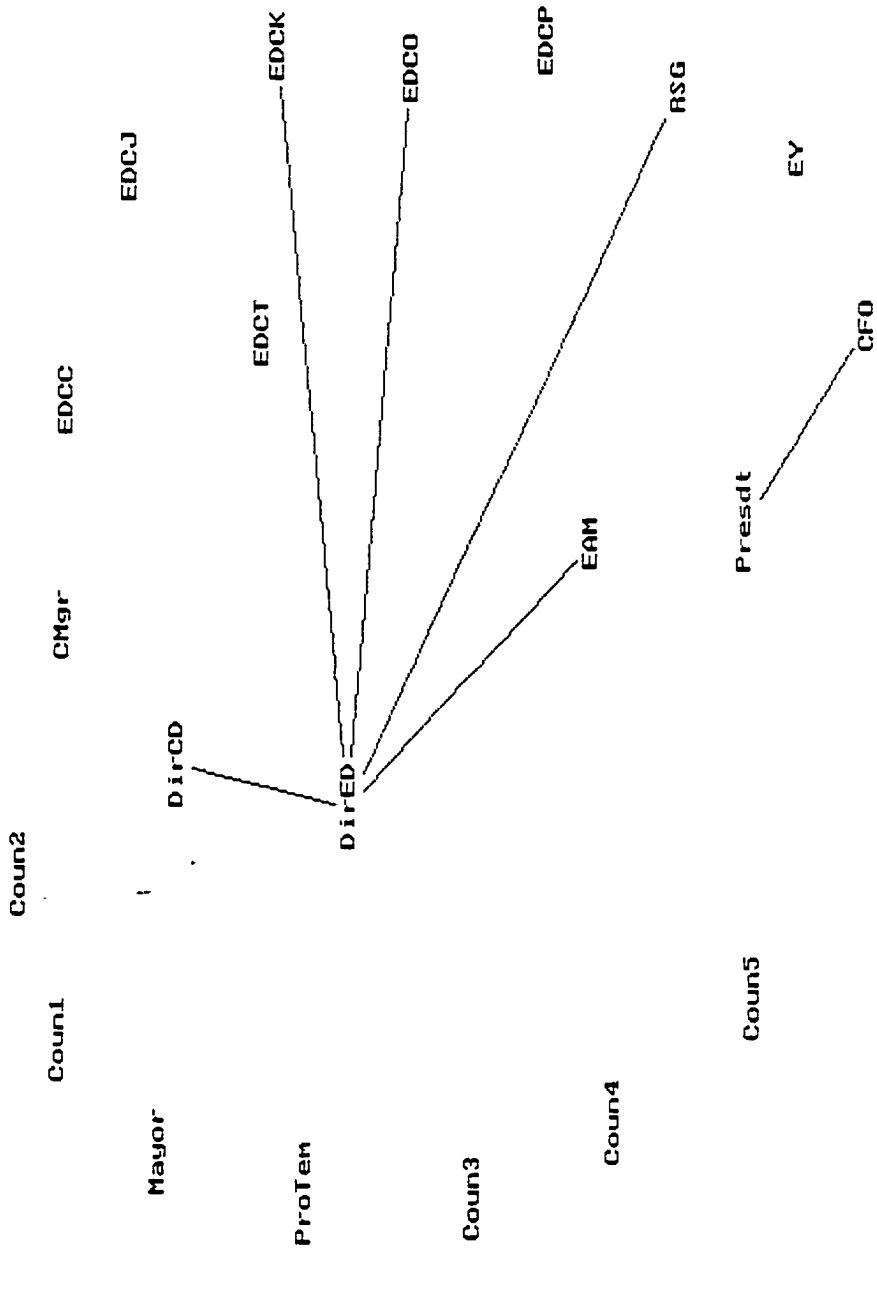


Figure 6 Social Network

actors. It is also possible that actors withheld their social relationships during the interviews. In addition, the geographic distance between a pair of points may reduce the opportunities that actors interact with each other, and therefore, a social network does not exist among a set of actors.

Summary

The findings of the network analyses are important to local economic development. First, the project network indicates the real decision-makers through examining the interaction in exchanging information and communicating regarding the program. Instead of elected officials, they, surprisingly, include one representative of ARCO and three appointed officials, the director of the community development department, the director of economic development department, and a member of economic development commission. These stakeholders drive the decision in economic development policy.

Appointed officials appear to be the key to a successful economic development program and play the leadership role. Different actors may play different roles in local economic development. Literature has pointed to the influence of individual leaders and identified the effects of leadership in economic development (Reese, 1997b; Basolo, 2000). Governmental interaction, elected officials, community leaders, appointed officers, and corporate elites, more or less, possess leadership identification in economic development. The examination of the interactions between individuals and groups that ultimately affect the project begins to fit the gap in the literature regarding the structural roles of appointed officials in economic development. The finding is substantial and

points to the importance of resulting professionals for lead roles in local economic development.

Second, the business and social networks shows that the head of the economic development department maintains relationships with an inner circle outside of his professional duties. These relationships, developed through business transactions and social interactions, suggest that an entrepreneurial professional may form more complex relationships to help, directly and indirectly, implement economic development for the city. They are also helpful for state and local elected officials to seek economic development opportunities through different channels. Furthermore, the social and business dimensions provide an alternative approach to evaluate the economic development program. The individual networks in business and social relationships can be an indicator of public policy. The power flow represented by individual relationships and power strength represented by the frequency of relationships can indicate who holds power while making policy decisions.

Third, the network analyses indicate the structure of the public-private network with high density influencing the partnership agreement. An active city administrator, who is the central actor in two networks, is the leader for economic development. In addition, a central actor from the private sector is identified as a bridge between the two sectors in the decision-making process for the project. These two actors from the two sectors are actively partnering together and the partnership led to the success of the project. As indicated in the literature, public-private partnerships can be an effective approach for implementing economic development. In the study case, the network relationships, particularly the most centralized actors, are highly connected to one another

and drive the decision. In other words, actors playing key integrative or coordinating roles in the partnership process tend to be located in the central place of the network.

Network analysis sheds new light on public-private arrangements, and community power and regime-based theories. These findings are helpful to local economic development practitioners and decision-makers when they evaluate potential economic development projects. In addition, the findings are useful to federal and state decision-makers in considering their roles in funding economic development initiatives to be implemented at the local level. Additional research in local economic development using social network analysis is needed to determine the influence of powerful individuals and groups in the policy making process.

CHAPTER V
COST-BENEFIT ANALYSIS

This chapter will examine the economic impacts of the project by conducting cost-benefit analysis for both the public and private sectors. Since the variables (or inputs) of costs and benefits to both parties are different, the output is revealed in different ways. Followed by the identification of those variables, cash flow analyses are performed for the private sector and the public sector, consisting of the City of Carson, Carson Redevelopment Agency, and the State of California. The outputs from both perspectives suggest whether tax abatement was necessary to the implementation of economic development project, and it also provides a measure of the true benefits and costs of a new economic activity. Based on the comparative analyses, this study makes policy suggestions about strategies used for local economic development.

Identification of Costs and Benefits

As mentioned in earlier chapters, cost-benefit analysis is a useful tool commonly used by the public and private sectors. Decision-makers use this approach to determine which decisions should be made, and to promote the efficiency of allocating scarce sources. It is important to offer a comprehensive assessment of policy effects, so the policy consequence that determines all of the policy resource impacts should be addressed prior to identifying the scarce sources, which represent as costs and benefits

stemmed from the policy. Identifying any unintended consequences in the decision-making process can be useful to decision-makers. In addition, correctly evaluating all policy impacts also increase the accuracy of the analysis. According to the literature (Fuguitt and Wilcox, 1999), the policy impact in the cost-benefit analysis can be categorized as six groups of benefits and costs in terms of the resources, goods, and services that are priced in the market and those that are not:

1. Marketed resources costs: These costs directly stem from the market-priced resources or impacts while implementing the policy. They generally include the start-up investment such as construction cost, and operating and maintenance expenditures, such as purchase of materials or fixed assets during the policy horizon.
2. Marketed output benefits: These benefits represent the value of goods or services generated by the policy and sold in the market. Any real change or increased value of these goods or services can be regarded as benefits. For example, if a new factory is built nearby the raw materials or harbors, the reduced transportation costs are the marketed output benefits.
3. Marketed output costs: These represent negative consequences for some parties in the policy. For instance, according to the prior example, the payrolls of new jobs that are created for the new factory are part of marketed output costs.
4. External effects: An external effect is a nonmarket effect, that is, it is not reflected in relative market prices. In other words, an external effect is an uncompensated gain or loss that involves real changes related to resources or outputs such as technological

externalities.[43] Examples of external costs are pollution generated by the factory and increasing traffic.

5. Pecuniary externalities:[44] A pecuniary externality does not produce an inefficiency because all costs and benefits are reflected in market prices. In other words, a pecuniary externality does not involve in inefficient allocation of resources, so there is no need for public policy to address this issue. In the ARCO case, the price change of polypropylene is not a net change in social welfare.

6. Secondary benefits: These represent changes in income induced through linkages that involve multiplier effects such as forward and backward direction linkages. In this case, if ARCO demands more inputs/resources, the resources supplier benefits from ARCO and thereby workers' income in the supplier possibly increases, which is a forward linkage. On the other hand, when ARCO makes more products and sells to the market with a lower price, people who work in the downstream company may have a chance to obtain better pay due to more benefits generated by decreased costs to the company. These are indirect benefits to the policy consequences per se. Like pecuniary effects, the secondary benefits should generally not be included in the cost-benefit calculation.

According to the above principle identifying costs and benefits, costs and benefits to ARCO and Carson are classified as follows (see Table 8):

1. Costs to ARCO

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[43] An externality that influences production or utility function is called a technological externality.

[44] An externality that influences market supply and demand conditions is called a pecuniary externality.

Table 8 Variables of Costs and Benefits by Carson and ARCO

	Carson	ARCO
Costs	Tax rebate	1. Plant construction -Machinery and equipment purchase -Construction materials -Materials-Subcontractors and Others 2. Recurring expenditures -Catalyst -Additives -Maintenance materials 3. New business development -Fixed asset purchase -Recurring expenses
Benefits	1. Property tax revenue 2. Sales tax revenue 3. License and permit fees 4. Income tax from jobs generated from the project	1. Tax rebate 2. Sales revenue on polypropylene

A. Marketed output costs: income tax from new permanent jobs payroll, sales tax and property tax.

B. Marketed resource costs: plant construction expense, including machinery and equipment purchase, construction materials, and temporary jobs payroll; recurring expenditures, including catalyst, additives, and maintenance materials, and new business development, including fixed asset purchase and human resources recurring expenses.

2. Benefits to ARCO

A. Marketed output benefits: sales revenues on polypropylene.[45]

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[45] Since the alternative of relocating the plant never exists, the transportation reduction could not be found in the ARCO internal document. This study ignores this variable as a benefit to ARCO.

B. Other: tax rebate.

3. Costs to Carson (City and Agency)

A. Marketed output costs: none.[46]

B. Other: tax rebate.

4. Benefits to Carson (City and Agency)

A. Marketed output benefits: sales tax; property tax, license and permit fees, and income tax from jobs generated from the project.[47]

5. Costs and Benefits to Society

A. Positive external effects: none.[48]

B. Negative external effects: unmeasured.[49]

According to the ARCO internal reports and the final ARCO-Carson Agreement, the marketed value of costs and benefits are listed below:

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[46] The city does not have to make new investment on infrastructure or public utilities such as streets or sewers for ARCO. Instead, ARCO may purchase power and water from franchising companies. Some public service costs provided by Carson are excluded because they are hard to be estimated whether the services are built for ARCO or nearby businesses.

[47] Since the income tax incremented from ARCO will go to the State of California and partially be distributed to the City of Carson, it will not be calculated in cost-benefit analysis but will be listed separately. The income tax is an indirect benefit to Carson. In addition, the new sales tax incremented from power or water companies due to new sales to ARCO is an indirect benefit to Carson, too. This study omits the indirect costs and benefits to any parties.

[48] There are no direct positive external effects because the polypropylene plant is not a public good. Some other external effects such as quality of life, increased median household income, and reduced unemployment rate remains unmeasured due to the time limitation or difficulty to measure.

[49] The cost of pollution damage to the society remains unmeasured because cleaning up the environment is also unable to be estimated.

1. Plant Construction:[50]

   A. Machinery and equipment purchases: $26.34 million

   B. Construction materials: $29.51 million

   C. Other materials and subcontractors: $74.29 million

2. Recurring Expenditures:[51]

   A. Catalyst: $3.6 million

   B. Additives: $2.25 million

   C. Maintenance materials: $2.93 million

3. New Business Development:[52]

   A. Fixed asset purchases: $2.23 million

   B. Recurring expenses: $0.81 million

4. License and permit fees: $320,000

5. Others:

      A. Property tax rate to the Agency: 1%[53]

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[50] Based upon the cost of all tangible personal property incorporated into the polypropylene facility. (Source: *Cost Value Analysis*, 8/18/98, ARCO)

[51] Estimated purchases of tangible personal property for ongoing operations at Carson facility. (Source: *Polypropylene Plant Analysis*, 7/16/98, ARCO)

[52] This represents the benefit of having one small fabricator of polypropylene relocate its facility to Carson as result of having ARCO Polypropylene in Carson. This plant would generate 70 to 80 local jobs, invest roughly $2 million in capital equipment, and have roughly $0.8 million in recurring expenses. Amounts reflect an anticipated 8% growth rate through 2000, and 6% growth thereafter, which is based on ARCO's industry research. Depending on Carson's success in attracting new fabricators to the City, the figures in sales tax could be higher.

[53] Based on the investment of all tangible personal property incorporated into the polypropylene facility. The estimated amount is $220 million. (Source: *Polypropylene Proposal*, 12/15/98, ARCO)

B. Sales tax rate to the City of Carson: 1%[54]

C. Income tax rate to the State of California: 6%

D. Temporary construction jobs: 1,300 @ 270 days

E. Permanent jobs: 77

Using the marketed values on the above variables of costs and benefits, the cost-benefit analysis was performed for the public sector, including the City of Carson and Carson Redevelopment Agency and for the private sector, ARCO.

The Public Sector Perspective of Costs and Benefits

This section reveals financial information for the City of Carson (the City) and the Carson Redevelopment Agency (the Agency) in the ARCO-Carson project based upon two periods of time, 15- and 30-year analyses. The cost of the agreement to the Agency is the property tax rebate. ARCO completed their new plant in 1999, so new value on the project site in 1999 was $220 million, which represents the investment of all tangible personal property associated with the ARCO Polypropylene facility. The value remains the same thereafter. Based on 1% tax rate plus override, the annual tax increment amount is $2.22 million (see table 9). Although ARCO initially asked for $11.2 million rebate over the five-year period, the Agency, however, had to back fill the housing fund for the

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[54] The 1% City sales tax would not be generated from the sales side of the business because sales by the plant and by its customers (fabricators) would not be taxable retail sales. The 1% City sales tax, however, could be generated from the purchase side of the business of both the polypropylene plant and fabricators who locate in Carson to be near this new supplier.

Table 9 Tax Increment Revenue Projections for the Agency (Proposed $11.08 Million Rebate)

Year	Fiscal Year	Total Assessed Value of Project Site (a)	New Value Added (Perso-nal Property) (b)	Total Assessed Value (c=a+b)	Tax Increment based on 1% plus override (d=cx1%+e)	Proposed Tax Rebate (f=(d-h)x50%)	Total Tax Incre-ment Revenue to Agency (g=d-f)	Housing Fund Obligation(20%) (h=dx40%)	Net Tax Incre-ment to Agency (Non-Housing) (n=g-h)
1	99'--00'*	0	220,000,000	220,000,000	2,216,321	2,216,321	0	443,264	-443,264
2	00'--01'*	220,000,000		220,000,000	2,216,321	2,216,321	0	443,264	-443,264
3	01'--02'*	220,000,000		220,000,000	2,216,321	2,216,321	0	443,264	-443,264
4	02'--03'*	220,000,000		220,000,000	2,216,321	2,216,321	0	443,264	-443,264
5	03'--04'*	220,000,000		220,000,000	2,216,321	2,216,321	0	443,264	-443,264
6	04'--05'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
7	05'--06'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
8	06'--07'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
9	07'--08'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
10	08'--09'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
11	09'--10'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
12	10'--11'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
13	11'--12'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
14	12'--13'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
15	13'--14'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
16	14'--15'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
17	15'--16'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
18	16'--17'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
19	17'--18'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
20	18'--19'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
21	19'--20'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
22	20'--21'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
23	21'--22'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
24	22'--23'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
25	23'--24'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
26	24'--25'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
27	25'--26'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
28	26'--27'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
29	27'--28'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
30	28'--29'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
Totals for Full 30 Years						11,081,605	55,408,025	13,297,920	42,110,105
						NPV of $ @ 7%	18,415,065	5,500,481	12,914,584
Totals for 15 Years Periods						11,081,605	22,163,210	6,648,960	15,514,250
						NPV of $ @ 7%	11,098,707	4,037,210	7,061,497

required 20% set aside amounts.[55] The estimated five-year total of this obligation is $2.2 million. If ARCO's initial request for rebate was fulfilled for as much as $11.2 million, the net tax increment after setting aside the housing fund obligation to the Agency would be lower than zero (see Table 9), which is unacceptable to the Agency. Based on the suggestion by RSG and negotiation between ARCO and Agency, the Agency agreed to financially assist ARCO with an annual amount equal to $1 million or 50% of the applicable tax increment received by the Agency, whichever is less.[56] Hence, the annual tax rebate should be approximately $.89 million and therefore the actual net tax increment to the Agency over the five-year period is same as the amount (see Table 10). In addition to the housing fund, the Agency will receive annual tax revenue with $1.77 million after the sixth year. In the 15-year period, it is anticipated that the Agency will receive net revenue over life of the project area of $22.2 million plus $6.6 million in housing funds. Another estimation in the 30-year period shows that net revenues received by the Agency are approximately $48.8 million plus $13.3 million housing funds. The total rebate for five years to ARCO, which represents the cost to the Agency (and the City), is $4.4 million.

Like the Agency, the City also benefits from the project in direct and indirect ways. First, the City will receive sales tax on the expenses associated with the project

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[55] California Revenue and Taxation Code 5108 requires that the Agency meet its obligation to set aside 20% of the property tax revenue generated by the project receiving the rebate.

[56] ARCO-Carson agreement section 6-b: "The Agency hereby agrees to rebate to ARCO LLC an annual amount equal to One Million Dollars ($1,000,000), or fifty percent (50%) of the Applicable Tax Increment received by the Agency, whichever amount is smaller,....."

Table 10 Tax Increment Revenue Projections for the Agency ($5 million Rebate @ 50% of the Non-Housing Funds)

Year	Fiscal Year	Total Assessed Value of Project Site (a)	New Value Added (Personal Property) (b)	Total Assessed Value (c=a+b)	Tax Increment based on 1% plus override (d=cx1%+e)	Proposed Tax Rebate (f=(d-h)x50%)	Total Tax Increment Revenue to Agency (g=d-f)	Housing Fund Obligation (h=dx20%)	Net Tax Increment to Agency (Non-Housing) (n=g-h)
1	99'--00'*	0	220,000,000	220,000,000	2,216,321	886,528	0	443,264	886,528
2	00'--01'*	220,000,000		220,000,000	2,216,321	886,528	0	443,264	886,528
3	01'--02'*	220,000,000		220,000,000	2,216,321	886,528	0	443,264	886,528
4	02'--03'*	220,000,000		220,000,000	2,216,321	886,528	0	443,264	886,528
5	03'--04'*	220,000,000		220,000,000	2,216,321	886,528	0	443,264	886,528
6	04'--05'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
7	05'--06'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
8	06'--07'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
9	07'--08'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
10	08'--09'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
11	09'--10'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
12	10'--11'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
13	11'--12'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
14	12'--13'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
15	13'--14'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
16	14'--15'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
17	15'--16'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
18	16'--17'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
19	17'--18'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
20	18'--19'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
21	19'--20'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
22	20'--21'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
23	21'--22'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
24	22'--23'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
25	23'--24'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
26	24'--25'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
27	25'--26'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
28	26'--27'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
29	27'--28'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
30	28'--29'	220,000,000		220,000,000	2,216,321	0	2,216,321	443,264	1,773,057
Totals for Full 30 Years						4,432,640	55,408,025	13,297,920	48,759,065
						NPV of $ @ 7%	18,415,065	5,500,481	18,366,993
Totals for 15 Years Period						4,432,640	22,163,210	6,648,960	22,163,210
						NPV of $ @ 7%	11,098,707	4,037,210	12,513,907

Table 11 Ten Year Projection of Potential for Sales Tax Allocated to Carson From 1999 to 2009 (in $1,000,000)

Sales Tax Benefits to Carson	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Totals	Tax to Carson
Plant Construction[a]:													
Machinery & Equipment Purchases	26.34											26.34	
Construction Materials	29.51											29.51	
Materials-Subcontractors & Others	74.29											74.29	
Subtotal	130.14											130.14	1.301
Recurring Expenditures[b]:													
Catalyst	3.60	3.80	4.00	4.20	4.40	4.40	4.40	4.40	4.40	4.40	4.40	46.40	
Additives	2.25	2.43	2.63	2.83	3.04	3.11	3.19	3.27	3.35	3.43	3.52	33.05	
Maintenance Materials	2.93	3.00	3.07	3.15	3.23	3.31	3.39	3.48	3.52	3.61	3.84	36.53	
Subtotal	8.78	9.23	9.7	10.18	10.67	10.82	10.98	11.15	11.27	11.44	11.76	115.98	1.160
New Business Development[c]:													
Fixed Asset Purchases	2.23											2.23	
Recurring Expenses	0.81	0.87	0.93	0.98	1.04	1.10	1.17	1.24	1.32	1.39	1.48	12.33	
Subtotal	3.04	0.87	0.93	0.98	1.04	1.10	1.17	1.24	1.32	1.39	1.48	14.56	0.146
Grand Total Capital Expenditures	141.96	10.10	10.63	11.16	11.71	11.92	12.15	12.39	12.59	12.83	13.24	260.68	
City Tax Benefit[d] (Local Tax @ 1%)	**1.420**	**0.101**	**0.106**	**0.112**	**0.117**	**0.119**	**0.122**	**0.124**	**0.126**	**0.128**	**0.132**	**2.607**	**2.607**

Notes:

a. Based upon the cost of all tangible personal property incorporated into the polypropylene facility. (Source: *Cost Value Analysis*, 8/18/98, ARCO)

b. Estimated purchases of tangible personal property for ongoing operations at Carson facility. (Source: *Polypropylene Plant Analysis*, 7/16/98, ARCO)

c. This represents the benefit of having one small fabricator of polypropylene relocate its facility to Carson as result of having ARCO Polypropylene in Carsaon. This plant would generate 70 to 80 local jobs, invest roughly $2 million in capital equipment, and have roughly $0.8 million in recurring expenses. Amounts reflect an anticipated 8% growth rate through 2000, and 6% growth thereafter, which is based on ARCO's industry research.

d. The figures in sales tax could be higher, depending on Carson's success in attracting new fabricators to the City.

and business license and permit fees. According to a 10-year projection of potential for sales tax, the City will receive tax revenues of approximately $2.61 million (see Table 11). The total tax in the first year is $1.42 million. Succeeding years could generate in excess of $100,000 per year. The 1% city sales tax, however, could be generated from the purchase side of the business of both the polypropylene plant and fabricators who locate in Carson. The sales tax revenue to the city could be higher if Carson successfully attracts new fabricators to the city and therefore they could generate sales tax and new jobs. On the other hand, the city sales tax would not be generated from the sales side of the business because sales by the plant and by its fabricators would not be taxable retail sales. Thus, the sales tax generated from the expenses in new business development may not go to the city.

Excluding sales tax increment on the new business development, Table 12 shows the projected sales tax to the city over the 15 years from 1999 to 2014. The estimated revenue from sales tax to the city is $3,094,798 (or $3,414,798 including permit fees of $320,000). The net present value of sales tax revenue and permit fees over a 15-year period is $2,537,642.

Second, in fulfilling the requirement of California Revenue and Taxation Code 5108,[57] ARCO has promised to bring temporary and permanent jobs into the city. The number of short-term jobs to be created by the project is 1,300 and the number of

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[57] California Revenue and Taxation Code 5108 (1-B), "Use of the property will lead to the creation of at least 10 new full-time manufacturing jobs or positions at salary levels of at least ten dollars ($10) per hour (twenty thousand dollars ($20,000) per year), and those jobs or positions will continue in existence for a continuous five-year period."

Table 12 Projected Benefits to Carson (from 1999 to 2014)

Revenue Sources	1999	2000	2001	2002	2003	2004	2005	2006	2007
Plant Construction Purchase	130,140,000								
Sales Tax (@1%)	1,301,400								
Recurring Expenses	8,780,000	9,230,000	9,700,000	10,180,000	10,670,000	10,820,000	10,980,000	11,150,000	11,270,000
Sales Tax (@1%)	87,800	92,300	97,000	101,800	106,700	108,200	109,800	111,500	112,700
Permit & Fees	320,000								
Totals[b]	1,709,200	92,300	97,000	101,800	106,700	108,200	109,800	111,500	112,700

Revenue Sources	2008	2009	2010[a]	2011	2012	2013	2014	Totals
Plant Construction Purchase								
Sales Tax (@1%)								1,301,400
Recurring Expenses	11,440,000	11,760,000	12,054,000	12,355,350	12,664,234	12,980,840	13,305,361	
Sales Tax (@1%)	114,400	117,600	120,540	123,554	126,642	129,808	133,054	1,793,398
Permit & Fees								320,000
Totals[b]	114,400	117,600	120,540	123,554	126,642	129,808	133,054	3,414,798

NPV @ 7% of Sales Tax and Permit Fees	**2,537,642**

Note:

a, Sales from 2010 and beyond based upon an annual inflation factor of 2.5%.

b. 1% city sales tax would not be generated from the sales side of the business because sales by the plant and by its customers (fabricators) would not be taxable retail sales. The 1% City sales tax, however, could be generated from the purchase side of the business of both the polypropylene plant and fabricators who locate in Carson to be near this new supplier.

Table 13 Indirect Financial Benefits to the State in 15 Years

	Number	Payrolls	Proposed Income Tax @ 6%
Temporary jobs (13 months)	1,300	$28,080,000	$1,684,800
Permanent jobs (Annual)	77	$3,388,000	$ 203,280
Total (15 years)	1,377	$78,900,000	$4,734,000

permanent jobs is 77.[58] The pay range of each type of job is as follows:

1. Short term construction jobs: $10/hr

2. Skilled permanent jobs: $20/hr plus benefits of $800

The indirect financial benefits to the state from the project include $28.08 million from temporary jobs and annually $3.39 million from permanent jobs (see Table 13). The proposed income tax to the state is anticipated to be $4.7 million in 15 years. In addition, there is a likelihood of a spin-off effect that will create additional jobs by new businesses that utilize polypropylene and locate in Carson. This indirect benefit, however, should not be included in the analysis.

In sum, the above findings reveal that the direct benefits generated by the ARCO project to the Agency and the city both over 15 year and 30 year periods are far more than the costs of the Agency (see Table 14). As a matter of fact, the Agency and the city started receiving net benefits from the very beginning of the project because ARCO had

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[58] The job amounts are based on the estimation addressed in the ARCO project proposal. The payrolls are calculated in a basis of eight working hours a day, 270 days per year, and $800 annual benefit.

Table 14 Summary of Costs and Benefits to the City and the Agency

Item			
Costs to the Agency	Estimated	Not to Exceed	
-Potential rebate over five years	**$4,432,641**	$5,000,000	
-Tax rebate after five years		0	
-Total Agency Costs		**$5,000,000**	
		15 Year Period	30 Year Period
Benefits to the Agency			
-Net revenue to the Agency over a 15-year period		$22,163,210	
-20% housing set-aside fund		$6,648,960	
-Subtotal		**$28,812,170**	
-B/C Ratio (Benefit/Cost)		**6.5**	
-Net revenue to the Agency over a 30-year period			$48,759,065
-20% housing set-aside fund			$13,297,920
-Subtotal			**$62,056,985**
-B/C Ration (Benefit/Cost)			**14.7**
Benefits to the City			
-Projected sales tax		$3,094,798	
-License, permits and other fees		$ 320,000	
-Total		**$3,414,798**	
Indirect Benefits to the State			
-Income tax from 1,300 temporary jobs		$1,684,800	
-Income tax from 77 permanent jobs		$3,049,200	
-Total		**$4,734,000**	

to pay 40% of the first-year property tax to the Agency and sales tax to the city as well. As long as the new plant keeps operating and producing polypropylene materials, the city will receive more than $100,000 in sales tax per year while the Agency will receive

annual net revenue of approximately $1,773,057. The rebate represents less than 14% of the overall new revenues to be generated to the city and the Agency in the 15-year period. In addition, the B/C (Benefit/Cost) ratio is as high as 6.5 over a 15-year period as well as 14.7 over a 30-year period. As a whole, the project produces an overwhelming financial effect for the public sector.

The Private Sector Perspective of Costs and Benefits

The major goal of an investment for the private sector is to obtain the maximum benefits in the minimum of time. In the project proposal ARCO presented to the city, the total project scope included refinery modifications to capture the propylene from the fuel gas system, which manufactures 550 million pounds per year of polypropylene and upgrade associated recovered products into gasoline components. Specific areas of expansion include three major investments:

1. Fuel Gas Liquids Recovery Unit:[59] The capital investment is approximately $55 million.
2. Propane/Propylene Splitter Unit:[60] The capital investment is approximately $85 million.
3. 550 million lbs/yr Polypropylene Plant:[61] Total cost is $220 million.

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[59] This unit is added to refinery system and reduces NO_x and SO_x emissions by 85 and 435 tons per year, respectively.

[60] This unit will upgrade the purity of the recovered propylene by separating the propane from the polypropylene plant feedstock.

[61] This plant will produce polypropylene resin. Average production in the first full year of operation is total 450 million pounds of polypropylene, 25 million pounds annual increases in the next four years, then 550 million pounds thereafter.

To qualify for assistance under the California Revenue and Taxation Code Section 5108, new investment has to be located in the redevelopment zone,[62] which includes the new polypropylene plant site. Thus, any new investment in the old refinery site should not be applied toward the credit of tax abatement. This reflects the fact that financial assistance from the Agency is only requested for the polypropylene plant portion of this project. Estimated by ARCO, an internal financing of $220 million to fund construction, equipment purchase and installation, and working capital, is the major cost to ARCO. Although the fuel gas liquid recovery unit and the propane/propylene splitter unit, total investment of $140 million, are not direct costs to ARCO Polypropylene LLC, the new raw feedstock produced by ARCO Refinery would be sold to ARCO Polypropylene LLC and it became a major expense to ARCO Polypropylene. Because ARCO Polypropylene becomes an internal purchaser of materials to ARCO Refinery, the transportation cost, one of the major expenses, can be reduced. In addition, some variable and fixed costs such as insurance generated from the new business are also regarded as costs to ARCO Polypropylene.

On the revenue side, the revenue sources primarily rely upon the sales of the polypropylene. Since sales of polypropylene play a crucial role in setting revenues, the price of feedstock and polypropylene in the market determine how long the company takes to reach break-even, while costs steadily increase. This study illustrates the cash flow analysis of this project in three scenarios based upon changes in prices[63] and the

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[62] Code 1-A, "The Property is directly involved in the manufacturing process in this state, and not in a preliminary or subsequent activity, or one incidental to manufacturing."

[63] The price reduction may reduce the internal rate of return (IRR) and extended the payback time. On the contrast, if the future price is higher than current one, larger

resultant tax rebate. Scenario one details the project's revenue potential prior to worldwide polypropylene price reduction, while scenario two presents an analysis of the project utilizing the current worldwide polypropylene price structure. Scenario three includes a tax rebate using the same price structure as scenario two. The internal rate of return (IRR) is calculated based on the yearly cash flow in 18 years, which includes the first three-year construction period starting in 1997 and a fifteen year operating life.

Under the productivity estimation by ARCO, the plant produced 112.5 million pounds of polypropylene in the first quarter of 1999 which is less than the estimated total quantity 450 million pounds. The yields annually increase by 25 million pounds till the saturated yields 550 million pounds in 2003. Due to the demand of venture partner of Japan-based Itochu Corporation, one quarter of total sales goes to Asian markets while the rest of sales are sold in domestic markets every year. The price of polypropylene varies in the different markets. The price in the U.S. market, for example, was 31 cents per pound in the first quarter of 1999[64] when the City and ARCO signed the agreement, while the worldwide price was 25 cents per pound. These price changes may be caused by the price of feedstock (or propylene), and they also lead to changes in variable and fixed costs. Hence, the analyses are based upon two price assumptions: 1) 37 cents in the domestic market and 29.5 cents in the world markets in scenario one; and 2) 27 cents in the domestic market and 22.7 cents in the world market in scenario two.

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revenue and short payback time are expected. In this case, the tax rebate request does not seem to be necessary.

[64] Data from *Chemical Market Reporter*, 1999, Schnell Publishing Company.

When the price goes up, the cash flow analysis to ARCO shows that the total revenues after 18 years are $233.8 million with the internal rate of return (IRR) of 11.36%. It reaches break-even at the third quarter of 2005 (see Table 15). In scenario two when the price is below the current price (year 1999), the cash flow analysis reveals total revenues are $148.04 million with IRR of 8.12%. The break-even locates at the very beginning of the first quarter of 2007 (see Table 16). Required by the City and is addressed in the final agreement,[65] ARCO, in order to receive the tax rebate, has to achieve one condition that the future polypropylene price should be lower than 31 cents. Otherwise, the rebate should then be reduced by the same percentage that the price of polypropylene has increased since 1999. In scenario one, ARCO can reach the payback time without the tax rebate after operating the plant seven years when the price goes from 31 to 37 cents per pound. In scenario two, ARCO reaches the payback time at the ninth year when the price drops from 31 to 27 cents per pounds. The internal rate of return, which drops from 11.36% to 8.12%, also indicates lower revenues (from $233.80 to $148.04 million) and longer payback time (from 7th to 9th year) in scenario two. In addition, when adding tax rebates ($0.89 million in the first five years) to the expenses,

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[65] Final agreement, section 6(c) "The amount of the Agency Assistance shall be calculated by multiplying the Applicable Tax Increment received by the Agency for the particular fiscal year by fifty percent (50%). The resulting amount, or one million dollars ($1,000,000), whichever is less, shall then be reduced by the same percentage that the average price of general purpose homopolymer polypropylene resin for that fiscal year, as reported by the Chemical Market reporter, published by the Schnell Publishing Company, or its successor, has increased above the high range price for the week ending January 1, 1999 (i.e., 31 cents per pound). Any decrease in the price below the price for the week ending January 1, 1999 shall not be considered. For example, if the average price for polypropylene for fiscal year 1999-2000 is 34.1 cents per pound, the Agency Assistance would be reduced by 10 percent (reflecting the 10 cent increase over the original 31 cents per pound market price)." March 23, 1999, the City of Carson.

Table 15 Cash Flow Analysis to ARCO--Scenario 1: Before Polypropylene Price Reduction (1997-2014)

Revenue Sources	**1997**	**1998**	**1999[a]**	**2000**	**2001**	**2002**	**2003**	**2004**
Sales[b] *(in million lbs)*			112.5	475	500	525	550	550
Price (dollars per lb.)								
West Coast & Midwest			0.37	0.37	0.37	0.37	0.37	0.37
Asia (150 MM lbs)			0.295	0.295	0.295	0.295	0.295	0.295
Total Revenue($ in millions) (1)			38.813	164.50	173.75	183.00	192.25	192.25
Expenses								
Feedstock ($ in million)			19.47	82.20	86.53	90.86	95.18	95.18
Transportation			3.675	15.41	16.15	16.90	17.70	17.18
Variable Costs			4.41	18.52	19.39	20.26	21.14	20.64
Fixed Costs (Taxes & Insurance)			6.38	25.59	16.93	17.29	17.66	18.03
Total Expenses (2)			33.93	141.72	139.00	145.31	151.68	151.03
Operating Income (3=1-2)			4.88	22.78	34.75	37.69	40.57	41.22
Income BFIT			(33.00)	(37.50)	(2.60)	14.50	17.20	28.30
Net Income @65%			(21.45)	(24.38)	(1.69)	9.43	11.18	18.40
Capital	31.15	146.20	17.60					
State Tax			5.10					
Working Capital			19.74					
Cash Flow ($ in million)	(31.15)	(146.20)	(9.50)	38.00	35.80	31.80	33.60	29.70
IRR (18 years) = 11.36%								

Note:

a. Having finished the plant construction, ARCO started producing polypropylene in 1999, Each item of expenses is calculated on a basis of one-fourth of total,

b. In ARCO's plan, 150 million pounds of sales will be sold to Asia market (due to the venture partner of Japan-based Itochu Corporation) and the rest of sales are sold in domestic markets every year. Since the plant started operating at the fourth quarter of 1999, the sale to Asia is only a quarter of 150 milllion lbs, which is 37.5 million lbs.

Table 15 (Continued)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
550	550	550	550	550	550	550	550	550	550	
0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	
0.295	0.295	0.295	0.295	0.295	0.295	0.295	0.295	0.295	0.295	
192.25	192.25	192.25	192.25	192.25	192.25	192.25	192.25	192.25	192.25	2,867.06
95.18	95.18	95.18	95.18	95.18	95.18	95.18	95.18	95.18	95.18	1,421.26
16.63	16.47	16.30	16.50	16.91	17.33	17.78	18.22	18.67	19.13	260.96
20.14	19.89	19.65	19.60	19.69	19.77	16.36	16.45	16.55	16.64	289.10
18.41	18.81	19.21	19.63	20.05	20.49	20.93	21.39	21.86	22.34	305.00
150.36	150.35	150.34	150.91	151.83	152.77	150.25	151.24	152.26	153.29	2,276.31
41.89	41.90	41.91	41.34	40.42	39.48	42.00	41.01	39.99	38.96	590.75
39.70	39.70	39.70	39.10	38.30	37.40	39.80	38.80	37.90	36.90	374.20
25.81	25.81	25.81	25.42	24.90	24.31	25.87	25.22	24.64	23.99	243.23
										194.95
25.81	25.81	**25.81**	25.42	24.90	24.31	25.87	25.22	24.64	23.99	**233.80**

Table 16 Cash Flow Analysis to ARCO--Scenario 2: Polypropylene Price Reduction (1997-2014)

Revenue Sources	**1997**	**1998**	**1999[a]**	**2000**	**2001**	**2002**	**2003**	**2004**
Sales[b] (in million lbs)			112.5	475	500	525	550	550
Price (dollars per lb.)								
West Coast & Midwest			0.27	0.27	0.27	0.27	0.27	0.27
Asia (150 MM lbs)			0.227	0.227	0.227	0.227	0.227	0.227
Total Revenue($ in millions) (1)			28.763	121.80	128.55	135.30	142.05	142.05
Expenses								
Feedstock ($ in million)			11.45	48.36	50.90	53.45	55.99	55.99
Transportation			3.675	15.41	16.15	16.90	17.70	17.18
Variable Costs			3.95	16.61	17.43	18.25	19.07	18.75
Fixed Costs (Taxes & Insurance)			6.38	19.22	17.19	17.55	17.93	18.31
Total Expenses (2)			25.46	99.60	101.67	106.15	110.69	110.23
Operating Income (3=1-2)			3.31	22.21	26.88	29.16	31.36	31.82
Income BFIT			(33.80)	(38.10)	(10.00)	6.40	8.50	19.40
Net Income @65%			(21.97)	(24.77)	(6.50)	4.16	5.53	12.61
Capital	31.15	146.20	17.60					
State Tax			5.10					
Working Capital			14.62					
Cash Flow ($ in million)	(31.15)	(146.20)	(10.50)	37.70	30.90	26.60	27.90	23.90
IRR (18 years) = 8.12%								

Note:

a. Having finished the plant construction, ARCO started producing polypropylene in 1999. Each item of expenses is calculated on a basis of one-fourth of total.

b. In ARCO's plan, 150 million pounds of sales will be sold to Asia market (due to the venture partner of Japan-based Itochu Corporation) and the rest of sales are sold in domestic markets every year. Since the plant started operating at the fourth quarter of 1999, the sale to Asia is only a quarter of 150 milllion lbs, which is 37.5 million lbs.

Table 16 (Continued)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
550	550	550	550	550	550	550	550	550	550	
0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	
0,227	0,227	0,227	0,227	0,227	0,227	0,227	0,227	0,227	0,227	
142,05	142,05	142,05	142,05	142,05	142,05	142,05	142,05	142,05	142,05	2,119,01
55,99	55,99	55,99	55,99	55,99	55,99	55,99	55,99	55,99	55,99	836,03
16,63	16,47	16,30	16,50	16,91	17,33	17,78	18,22	18,67	19,13	260,96
18,43	18,28	18,14	18,14	18,21	18,29	15,89	15,98	16,08	16,17	267,67
18,70	19,10	19,51	19,93	20,36	20,81	21,26	21,72	22,20	22,69	302,86
109,75	109,84	109,94	110,56	111,47	112,42	110,92	111,91	112,94	113,98	1,667,52
32,30	32,21	32,11	31,49	30,58	29,63	31,13	30,14	29,11	28,07	451,50
30,60	30,50	30,40	29,80	29,00	28,10	29,50	28,50	27,60	26,60	243,00
19,89	19,83	19,76	19,37	18,85	18,27	19,18	18,53	17,94	17,29	157,95
										194,95
19,89	19,83	**19,76**	19,37	18,85	18,27	19,18	18,53	17,94	17,29	**148,04**

the cash flow analysis reveals total revenues slightly change from $148.04 million to $147.57 while the IRR is up for .05% (from 8.12% to 8.17%) (see Table 17). The break-even time also moves back a bit from the very beginning of the ninth year (2007) to the very end of the eighth year (2006). It indicates that the tax rebate does not have a significant effect on ARCO. In sum, ARCO can gain more revenues when the price is high even without the tax assistance from the city. On the other hand, the tax rebate, when the price is low, does not significantly aid ARCO in the long run. Frankly, the tax rebate is only a "bonus" instead of "assistance" to ARCO.

Since the expected value generated from a single-valued result does not show the impact of uncertainty, decision-makers should make some allowance for risk. By weighting the chances that the actual result could exceed or fall short of the expected result, several other results may be generated by setting different impacts of uncertainty, such as "worst case" and "best case." Assigning different probability distributions to variables allows decision-makers to decide if the expected and "best case" values are good enough to outweigh the "worst case" value. To deal with the risk and uncertainty uncertainty of some certain variables, which are the polypropylene price the major revenue determined by the supplies and demands of the world market, and the feedstock expense, the major expense, *@RISK* simulation modeling is used to perform another scenario analysis.[66]

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[66] Risk analysis is only performed to the private sector because the costs of the public sector, in this case, are difficult to be measured. For example, in order to consider the risk and uncertainty from the perspective of the public sector, some further analysis such as environmental impact analysis to the chemical plant may be required. Since this study has ignored the similar analysis and has only focused on the cash-flow analysis to the private sector, risk analysis is not applied to the public sector.

Table 17 Cash Flow Analysis to ARCO--Scenario 2: Polypropylene Price Reduction with Tax Rebate (1997-2014)

Revenue Sources	**1997**	**1998**	**1999[a]**	**2000**	**2001**	**2002**	**2003**	**2004**
Sales[b] (in million lbs)			112.5	475	500	525	550	550
Price (dollars per lb.)								
West Coast & Midwest			0.27	0.27	0.27	0.27	0.27	0.27
Asia (150 MM lbs)			0.227	0.227	0.227	0.227	0.227	0.227
Total Revenue($ in millions) (1)			28.763	121.80	128.55	135.30	142.05	142.05
Expenses								
Feedstock ($ in million)			11.45	48.36	50.90	53.45	55.99	55.99
Transportation			3.675	15.41	16.15	16.90	17.70	17.18
Variable Costs			3.95	16.61	17.43	18.25	19.07	18.75
Fixed Costs (Taxes & Insurance)			6.38	19.22	17.19	17.55	17.93	18.31
Tax Rebate			(0.89)	(0.89)	(0.89)	(0.89)	(0.89)	
Total Expenses (2)			24.57	98.71	100.78	105.26	109.80	110.23
Operating Income (3=1-2)			4.19	23.09	27.77	30.04	32.25	31.82
Income BFIT			(33.00)	(37.50)	(9.40)	6.90	9.00	19.10
Net Income @65%			(21.45)	(24.38)	(6.11)	4.49	5.85	12.42
Capital	31.15	146.20	17.60					
State Tax			5.10					
Working Capital			14.62					
Cash Flow ($ in million)	(31.15)	(146.20)	(10.00)	38.00	31.30	26.90	28.30	23.80
IRR (18 years) = 8.17%								

Note:

a. Having finished the plant construction, ARCO started producing polypropylene in 1999. Each item of expenses is calculated on a basis of one-fourth of total.

b. In ARCO's plan, 150 million pounds of sales will be sold to Asia market (due to the venture partner of Japan-based Itochu Corporation) and the rest of sales are sold in domestic markets every year. Since the plant started operating at the fourth quarter of 1999, the sale to Asia is only a quarter of 150 milllion lbs, which is 37.5 million lbs.

Table 17 (Continued)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
550	550	550	550	550	550	550	550	550	550	
0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	
0,227	0,227	0,227	0,227	0,227	0,227	0,227	0,227	0,227	0,227	
142,05	142,05	142,05	142,05	142,05	142,05	142,05	142,05	142,05	142,05	2,119,01
55,99	55,99	55,99	55,99	55,99	55,99	55,99	55,99	55,99	55,99	836,03
16,63	16,47	16,30	16,50	16,91	17,33	17,78	18,22	18,67	19,13	260,96
18,43	18,28	18,14	18,14	18,21	18,29	15,89	15,98	16,08	16,17	267,67
18,70	19,10	19,51	19,93	20,36	20,81	21,26	21,72	22,20	22,69	302,86
										(4,43)
109,75	109,84	109,94	110,56	111,47	112,42	110,92	111,91	112,94	113,98	1,663,08
32,30	32,21	32,11	31,49	30,58	29,63	31,13	30,14	29,11	28,07	455,93
30,30	30,20	30,10	29,50	28,60	27,70	29,10	28,20	27,20	26,20	242,20
19,70	19,63	19,57	19,18	18,59	18,01	18,92	18,33	17,68	17,03	157,43
										194,95
19,70	**19,63**	19,57	19,18	18,59	18,01	18,92	18,33	17,68	17,03	**147,57**

Risk analysis in *@RISK* is a quantitative method that seeks to determine the outcomes of a decision situation as a probability distribution. *@RISK* uses a technique called "simulation" to combine all the uncertainties identified in the modeling situation. The point of simulation has been to obtain an idea of the uncertainty that surrounds the ultimate payoff. Simulation is an excellent tool for developing a model of uncertainty (Clemen, 1996). Monte Carlo simulation, for example, is another approach to dealing with uncertainty in a decision situation. Performing a simulation requires four steps: defining the input distributions, identifying the outputs for which we want distributions, running the simulation, and analyzing the results. In *@RISK*, simulation uses two distinct operations: selecting sets of values for the probability distribution functions contained in the cells and formulas of the worksheets, and recalculating the worksheet using the new values. Used as "add-ins" in the spreadsheets, *@RISK* uses probability distributions to describe uncertain values in the worksheets and to generate a new set of possible results.

According to the *Chemical Market Reporter* (2000), the historical price for polypropylene between 1994 and 1999 ranged from 25 cents to 48 cents per pound. The annual growth rate was 8.6 % while the projected demand was 7% per year through 2003. The demand is expected to grow steadily. However, many new capacity additions such as ARCO's new plant have gone into the market and more are under construction in the U.S. Propylene, the precursor to polypropylene, is in adequate supply, but if oil prices increase further, the alkylation value of propylene will likewise increase and refineries will pull propylene out of the chemical market and use it in gasoline, leading to shorter supplies and higher prices. Although polypropylene remains the world's fastest-growing

commodity resin, the uncertainty and risk generated from many economic factors that affect the price still exist.

According to the projection on the price by ARCO and the Chemical Market Reporter, the price through 2003 is likely to go down. A higher possibility (75%), therefore, is assigned to a lower price, which is less than 31 cents, while determining the price structure in the risk analysis. The price varies with respect to the market after 2004, which represents 50% probability below 31 cents and 50% probability above 31 cents. By using the distribution function of *RiskUniform(Minimum, Maximum)*[67] and assigning probabilities for all the values in the range, 25 and 48 represent the domestic prices, and 17 and 30 represent the world prices, to describe the full range of the distribution. The minimum and maximum prices are adopted based upon historical prices between 1994 to 1998. As more numbers of iteration are executed during a simulation, the output distributions become more "stable."[68] The more the numbers of iteration are set, the longer the recalculation takes.[69] By using the *Monitoring Convergence* option in

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[67] *@RISK* provides a few distribution functions. The most common and simplest functions in sensitivity and scenario analyses are *RiskTriang(Minimum, Most Likely, Maximum)*, *RiskNormal(Mean, Standard Deviation)*, and *RiskUniform (Minimum, Maximum)*. The mean and standard deviation of historical prices are not available due to missing data in the historical prices. In addition, the most likely price can not be easily identified. Thus, *RiskNormal* is chosen as the distribution function.

[68] The distribution become stable because the statistics that describe them change less and less as additional iterations are performed. The number of iterations required to generate stable output distributions varies depending on the model being simulated and the distribution functions in the model (Palisade, 2000).

[69] In each iteration, all distribution functions are sampled. The sampled values are returned to the cells and formulas of the worksheets. The worksheet is recalculated in the number of iterations. New calculated values in the cells of the selected output ranges are saved for use in creating output distribution.

@RISK,[70] a sufficient number of iterations can be ensured. In this case, 500 iterations are set to run the simulations.[71]

According to two reports in the *Chemical Market Reporter*,[72] feedstock costs rose in 2000 and continue to soar due to increasing in energy and oil costs. In addition to two price structures, feedstock expenses, which are more than half of total expenses, are also run in simulation with a range of values, depending upon total revenues. Since I cannot obtain the complex relation between feedstock and price, I make an assumption that the feedstock expense is 50% of total revenues when the price is higher than current one and 40% of total revenues when the price is lower than current price, based on the data in the previous cash flow analyses. Table 18 shows the simulation settings in *@RISK*.

Using *@RISK* in simulation modeling in prices and feedstock expense,[73] the total revenues in 18 years are $183.18 million with IRR value of 9.14% (see Table 19). ARCO reaches break-even in the second quarter of 2007, which is the same as scenario two. When counting tax rebate into the cash flow, the total revenues increase $2 million

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[70] According to the manual of *@RISK*, convergence is monitored on three sets of statistics calculated for each output distribution. They are percentiles (0% to 100% in 5% increments), mean, and standard deviation. Monitoring convergence is done by calculating the above statistics on the data generated for each output cell at regular intervals throughout the simulation. Each time new statistics are calculated the percentage change in statistics from the prior calculation is also determined. As the percentage change gets smaller, the impact on the statistics of running additional iterations decrease and the output distributions become more stable.

[71] By using the Convergence Monitoring options in *@RISK*, 500 iterations were chosen as the number of iterations.

[72] Brown, Robert. Polypropylene Prices Rise; Feedstock Costs Continue to Soar. *Chemical Market Reporter*. March 20, 2000. Brown, R. Polypropylene Margins Fall; Feedstock Costs Rise Too Quickly. *Chemical Market Reporter*. August 7, 2000.

[73] See highlights in the spreadsheet of Table 19 and Table 20 for different settings and outputs before and after *@RISK*.

Table 18 Simulation Settings in *@RISK*

Variables to Simulation	Item	Setting
Domestic Price	Probability (1999-2003) Probability (2004-2014) Distribution function Numbers of iteration	75% $P_d \leq 31¢$; 25% $P_d > 31¢$ 50% $P_d \leq 31¢$; 50% $P_d > 31¢$ RiskUniform (25, 48) 500
World Price	Probability (1999-2003) Probability (2004-2014) Distribution function Numbers of iteration	75% $P_w \leq 25¢$; 25% $P_w > 25¢$ 50% $P_w \leq 25¢$; 50% $P_w > 25¢$ RiskUniform (17, 30) 500
Feedstock Expense	Probability (1999-2003)	40% of total revenues when $P_d \leq 31¢$; $P_w \leq 25¢$ 50% of total revenues when $P_d > 31¢$; $P_w > 25¢$

to $185.18 million while the IRR value slightly increases to 9.27% (see Table 20). The payback time remains at the second quarter of 2007. The outcomes indicate that the tax rebate is not the major factor to ARCO in finance.

Summary

Tax abatements as well as other economic development incentives have been commonly used by state and local government in the U.S for several decades. Many scholars indicate it is a popular approach to stimulate economic development (Rubin and Wilder, 1989; Bartik, 1991; Reese, 1997b; Fisher and Peters, 1998; Campbell, et al, 1999). Little literature, however, has proved its effectiveness in economic development.

A few researchers suggest approaches such as process monitoring and before-and-after evaluation (Bartik and Bingham, 1997) when evaluating and judging the

Table 19 Cash Flow Analysis to ARCO--Scenario 3; Risk Analysis without Tax Rebate (1997-2014)

Revenue Sources	**1997**	**1998**	**1999**[a]	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Sales[b] (in million lbs)			112.5	475	500	525	550	550	550
Price (dollars per lb.)									
West Coast & Midwest			**0.29**	**0.27**	**0.30**	**0.25**	**0.29**	**0.35**	**0.32**
Asia (150 MM lbs)			**0.196**	**0.231**	**0.208**	**0.227**	**0.186**	**0.259**	**0.264**
Total Revenue($ in millions) (1)			29.10	122.40	136.20	127.80	143.90	178.85	167.60
Expenses									
Feedstock ($ in million)			**11.64**	**48.96**	**54.48**	**51.12**	**57.56**	**89.43**	**83.80**
Transportation			3.675	15.41	16.15	16.90	17.70	17.18	16.63
Variable Costs			3.95	16.61	17.43	18.25	19.07	18.75	18.43
Fixed Costs (Taxes & Insurance)			6.38	19.22	17.19	17.55	17.93	18.31	18.70
Total Expenses (2)			25.65	100.20	105.25	103.82	112.26	143.67	137.56
Operating Income (3=1-2)			3.46	22.20	30.95	23.98	31.64	35.19	30.04
Income BFIT			(33.60)	(38.10)	(8.60)	4.00	8.60	33.36	28.48
Net Income @65%			(21.84)	(24.77)	(5.59)	2.60	5.59	21.68	18.51
Capital	31.15	146.20	17.60						
State Tax			5.10						
Working Capital			14.69						
Cash Flow ($ in million)	(31.15)	(146.20)	(10.40)	37.70	36.10	20.66	28.00	21.68	18.51
IRR (18 years) = 9.14%									

Note:

a. Having finished the plant construction, ARCO started producing polypropylene in 1999. Each item of expenses is calculated on a basis of one-fourth of total.

b. In ARCO's plan, 150 million pounds of sales will be sold to Asia market (due to the venture partner of Japan-based Itochu Corporation) and the rest of sales are sold in domestic markets every year. Since the plant started operating at the fourth quarter of 1999, the sale to Asia is only a quarter of 150 milllion lbs, which is 37.5 million lbs.

Table 19 (Continued)

2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
550	550	550	550	550	550	550	550	550	
0.27	**0.32**	**0.42**	**0.44**	**0.39**	**0.29**	**0.46**	**0.36**	**0.33**	
0.204	**0.228**	**0.273**	**0.255**	**0.196**	**0.206**	**0.240**	**0.228**	**0.217**	
138,60	162,20	208,95	214,25	185,40	146,90	220,00	178,20	164,55	2,524,90
55.44	**81.10**	**104.48**	**107.13**	**92.70**	**58.76**	**110.00**	**89.10**	**82.28**	1,177,96
16,47	16,30	16,50	16,91	17,33	17,78	18,22	18,67	19,13	260,96
18,28	18,14	18,14	18,21	18,29	15,89	15,98	16,08	16,17	267,67
19,10	19,51	19,93	20,36	20,81	21,26	21,72	22,20	22,69	302,86
109,29	135,05	159,05	162,61	149,13	113,69	165,92	146,05	140,27	2,009,45
29,31	27,15	49,91	51,65	36,27	33,21	54,08	32,15	24,29	515,46
27,79	25,74	47,31	48,96	34,38	31,48	51,27	30,48	23,02	314,56
18,06	16,73	30,75	31,82	22,35	20,46	33,32	19,81	14,96	204,47
									194,95
18,06	**16.73**	30,75	31,82	22,35	20,46	33,32	19,81	14,96	**183.18**

Table 20 Cash Flow Analysis to ARCO--Scenario 3: Risk Analysis with Tax Rebate (1997-2014)

Revenue Sources	**1997**	**1998**	**1999[a]**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Sales[b] (in million lbs)			112.5	475	500	525	550	550	550
Price (dollars per lb.)									
West Coast & Midwest			**0.29**	**0.27**	**0.30**	**0.25**	**0.29**	**0.35**	**0.32**
Asia (150 MM lbs)			**0.196**	**0.231**	**0.208**	**0.227**	**0.186**	**0.259**	**0.264**
Total Revenue($ in millions) (1)			29.10	122.40	136.20	127.80	143.90	178.85	167.60
Expenses									
Feedstock ($ in million)			**11.64**	**48.96**	**54.48**	**51.12**	**57.56**	**89.43**	**83.80**
Transportation			3.675	15.41	16.15	16.90	17.70	17.18	16.63
Variable Costs			3.95	16.61	17.43	18.25	19.07	18.75	18.43
Fixed Costs (Taxes & Insurance)			6.38	19.22	17.19	17.55	17.93	18.31	18.70
Tax Rebate			**(0.89)**	**(0.89)**	**(0.89)**	**(0.89)**	**(0.89)**		
Total Expenses (2)			24.76	99.31	104.36	102.93	111.37	143.67	137.56
Operating Income (3=1-2)			4.34	23.09	31.84	24.87	32.53	35.19	30.04
Income BFIT			(32.80)	(37.50)	(8.20)	4.40	9.10	33.36	28.48
Net Income @65%			(21.32)	(24.38)	(5.33)	2.86	5.92	21.68	18.51
Capital	31.15	146.20	17.60						
State Tax			5.10						
Working Capital			14.69						
Cash Flow ($ in million)	(31.15)	(146.20)	(9.90)	38.00	36.50	21.06	28.40	21.68	18.51
IRR (18 years) = 9.27%									

Note:

a. Having finished the plant construction, ARCO started producing polypropylene in 1999. Each item of expenses is calculated on a basis of one-fourth of total.

b. In ARCO's plan, 150 million pounds of sales will be sold to Asia market (due to the venture partner of Japan-based Itochu Corporation) and the rest of sales are sold in domestic markets every year. Since the plant started operating at the fourth quarter of 1999, the sale to Asia is only a quarter of 150 milllion lbs, which is 37.5 million lbs.

Table 20 (Continued)

2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
550	550	550	550	550	550	550	550	550	
0.27	**0.32**	**0.42**	**0.44**	**0.39**	**0.29**	**0.46**	**0.36**	**0.33**	
0.204	**0.228**	**0.273**	**0.255**	**0.196**	**0.206**	**0.240**	**0.228**	**0.217**	
138.60	162.20	208.95	214.25	185.40	146.90	220.00	178.20	164.55	2,524.90
55.44	**81.10**	**104.48**	**107.13**	**92.70**	**58.76**	**110.00**	**89.10**	**82.28**	1,177.96
16.47	16.30	16.50	16.91	17.33	17.78	18.22	18.67	19.13	260.96
18.28	18.14	18.14	18.21	18.29	15.89	15.98	16.08	16.17	267.67
19.10	19.51	19.93	20.36	20.81	21.26	21.72	22.20	22.69	302.86
									(4.43)
109.29	135.05	159.05	162.61	149.13	113.69	165.92	146.05	140.27	2,005.01
29.31	27.15	49.91	51.65	36.27	33.21	54.08	32.15	24.29	519.89
27.79	25.74	47.31	48.96	34.38	31.48	51.27	30.48	23.02	317.26
18.06	16.73	30.75	31.82	22.35	20.46	33.32	19.81	14.96	206.22
									194.95
18.06	**16.73**	30.75	31.82	22.35	20.46	33.32	19.81	14.96	**185.18**

effectiveness of economic development program. This study focuses on the effects of the program on the performance of the assisted firm. Through the measurement of effectiveness of the incentive, the outcome indicates there is no significant effect of the tax abatement. The public sector may gain revenues without offering a rebate if the firm would build the plant in Carson without the tax incentive.

Although the firm claimed the tax rebate was useful in to recruiting another investor, the main justification for incentives is to lower the costs of doing business. It is hard to measure the relation between tax assistance and new potential investment. Financially, the short payback time and long-term revenues perhaps are better indicators when potential investors evaluate a deal. In addition, as a strategy to gain tax assistance, the threat by a business to leave a community can be quite dramatic, in particular when an investment is a big chemical plant. By contrast, the costs of paying subsidies to the business are borne by the community over the long term and are far less visible. Consequently, development officials are often led to meet the demands of businesses, in particular those of big businesses. Furthermore, some scholars argue that tax concessions are not so important a factor in influencing business siting decisions (Calzonetti and Walker, 1991). A firm must locate in reasonable proximity to suppliers, a trained labor force, and the market for its goods. In this case, the new plant locates in a good site with many advantages such as being next to materials, easy access to transportation hubs, high potential to the markets, and few competitors in the same area.

In sum, the tax rebate offered by Carson is not significant in the long-term cash flow realized by ARCO based upon this analysis on three scenarios. This study provides evidence that the tax abatement was not needed by the firm. Although the tax incentives

may play a role when the public sector promotes economic development, the real effects for this policy may vary from place to place. In other words, a comprehensive evaluation of a project before implementation is necessary. The evidence in this study is perhaps not enough to determine whether the program goals have been accomplished, but the public officials might make a totally different decision if a comprehensive evaluation like this study had been done.

CHAPTER VI
CONCLUSIONS

Through a set of quantitative analyses, the study wraps up by two sections: 1) conclusions, and 2) suggestions and possible extensions for future studies in economic development.

Conclusions

Very little is known about the relationship between power structure and economic development outcomes (Reese, 1997a). This limitation may, more or less, lead to an inaccurate evaluation for economic development outcomes. In addition to revealing three networks and their importance for power analysis, I also evaluated the economic development policy (tax rebate) through the cost-benefit analysis. The findings of this study are:

First, key decision-makers played a significant role in approval of the ARCO proposal to build a polypropylene plant in Carson. The literature has highlighted the operative roles of governing regimes, typically consisting of public officials and business elites. The network analyses show that many individuals possess power in the decision-making procedures, although businesspersons appear to be more active in the economic development activities than elected officials.

Second, elected officials are not economic development engines as claimed by most political economists. Instead, this study revealed that the head of the economic development department was the leader in local economic development. In other words, leadership of economic development in Carson was exercised by economic development professionals along with elected officials' allowance. Professionalization of economic development may result in efficient and effective policy-making and implementation. It also adds to the credibility of economic development staff in their dealings with the private sector and elected officials.

Third, tax abatement usually ranks at the top of the list of incentives for the private sector, and it is a major inducement for economic development activities. The public sector feels compelled to offer incentives, but it is uncertain about the impacts of incentives on the marginal costs of business. This study indicated that tax abatement does not have a significant financial effect or cost reduction in the long run to the firm. On the other hand, it perhaps is a waste of money to the public sector because the city can receive long-term tax revenues without providing any incentives if the business location was never really at risk. Although the tax rebate was unnecessary to ARCO in this case, its effects on the decision of other firms who seek incentives before investing in cities cannot be predicted by this research. An economic development policy is applied to all businesses; therefore, it may yield a bigger effect to other businesses. With a high benefit/cost ratio both in the short term and in the long run, Carson gained from ARCO's project. Thinking like the private sector, the public sector perhaps ought to invest some money (tax rebates) to gain large returns (tax revenues). To gamble (or risk) in

bargaining with businesses may not be wise. This may explain one of goals of public-private partnerships', sharing of risks and revenues by both sectors.

Fourth, a comprehensive economic development plan and policy evaluation should exist in every locality, if applicable. Many economic development surveys report that almost half of the jurisdictions in the U.S. do not have an economic development plan. This explains why some cities lose in intercity competition to attract businesses. An economic development plan can provide guidelines for operating in a complex environment and criteria to evaluate economic development outcomes. This study provides a comprehensive evaluation of an economic development policy, so it offers insights about whether the policy is successful and possibly may prevent a waste of public resources/goods in future projects.

New businesses usually demand costly governmental services. A city typically pays for infrastructure repairs and some improvements necessitated by a business start-up or retention. If the business, as a result of tax abatements, does not pay the full costs of the services, the burden of supporting such activities will be borne by residential and small business owners. In such a case, the policy of tax abatement is not equitable or fair and becomes a privilege to certain businesses.

Networks illustrate the individual relationships among local elites. For economic development policy and other public policies as well, network data can become a database for state and local officials to execute policies through certain targets. By applying network techniques to specific groups and developing various networks such as government—business network and community-leaders—business network, enhanced

communications and more effective partnerships can be created among sectors to promote public goals.

In U.S. economic development, traditional political coalition-building is being reshaped by an evolving political landscape in cities. Local government is becoming more specialized and professionalized, and the power/decision-making is shifting among public officials, business elites, and community leaders. As economic development partnerships grow, there are changes relating to the internal cohesion of decision making politics and the ability of leadership groups to maintain cohesion as a vital factor in city governance. As the politics, economy, and society continue to change, the economic development leadership and government-business network will create new forms within and among cities.

Suggestions and Possible Extensions

This study uses two methods to evaluate an economic development policy. These methods, however, have rarely, if ever, been applied as valuation tools in economic development practice. In addition to adding to the literature, this study also is intended to introduce available, yet virtually unused, analytic techniques into economic development research. Suggestions for future research include the followings:

First, this study focuses on only one economic development project. The City of Carson was dedicated to economic development and as a result many economic development projects were pursued. Different projects would generate different benefits to the city. For example, a commercial shopping center might bring fewer tax revenues

to the city but better serve the demand for consumer goods in the locality. Therefore, one extension would be to examine a variety of types of economic development programs.

Second, although tax abatement is a popular incentive for the private sector, different incentives may generate different economic effects for a city. By comparing projects that use different incentives, different outcomes may be observed and evaluated. For example, a low-interest loan, which was initially suggested by a councilmember in the ARCO case, might cost less for a city, compared to an annual $1 million tax rebate, and a city would receive the same amount of tax revenues.

Third, a network analysis will be different depending on the characteristics of the locality. Every place has its own political and social atmosphere. In other words, the local political network consists of different groups and individuals. Economic development may be dominated by corporate elites in a big city, while the elected officials may take a leading role in a mid-size or small city. In addition, the racial diversity in Carson divides politics into several groups so that there is no specific group that can dominate public policy. Political power, in turn, is divided among a diverse group of elected officials; therefore, the scattered power may provide rooms for appointed officials to gain and exercise power and leadership.

Fourth, network analysis can be extended to different focus groups/subgroups. The economic development commissioners, for example, were keys to local economic development policies since they were appointed directly by elected officials. Individuals, in particular those who maintain a long-term relationship with politicians and community leaders, also are likely to become bridges between the two sectors. In the business network analysis of this study, appointed officials clearly possess and exercise power

through the decision making process, even though the economic development commission was an advisory body.

Fifth, many individuals in the networks played different roles in the policy process. For example, the role of the consultant hired by Carson can also be a focus for future study. Except for a three-page report in favor of ARCO's proposal, there was no detailed analysis from the consulting company focusing on costs and benefits to the city. Reviewed using different perspectives, the suggestions to the city may vary. In addition, the key representative from ARCO was important to the power study. He stepped down from the economic development commission when dealing with the project and then was reappointed when the project was approved. Although he did not emerge as a powerful node in the network analyses, the qualitative data suggest this individual was a key to the project. More information, if possible to attain, on his relationship with people at the city would enrich this study.

Sixth, a comprehensive plan regarding data collection is necessary when conducting a qualitative study. Although social network analysis requires a two-step data collection process, the time frame is important. During the eight months between the two steps, a few people involved moved or changed jobs and were difficult to locate. In addition, it also is important to continue to monitor local circumstances. The interview outcome might have been more complete if a local election had not been imminent. An earlier site visit might have obtained a better outcome. Moreover, the longer the period between the project decision making and data collection, the more likely people would forget details with respect to the project. This creates a threat to validity of data.

Seventh, additional network analysis can be done if the relational data are completed. The missing data among missing stakeholders limited the network analysis conducted by this research. For instance, a directional graph can be drawn if the interactive relational data had been collected from all individuals; then network-related analyses such as clique, reachability, and blockmodeling could have been used in order to better understand individual relations in the three networks.

Eighth, external effects such as social costs were not calculated in the cost-benefit analysis because the nonmarket effects are difficult to measure in market prices. This measurement is not important when the case is a small project that yields few external costs. In addition, by defining different variables in costs and benefits, the findings in the cost-benefit analysis would change (e.g. a lower internal rate of return, a longer break-even period, and a lower benefit/cost ratio).

Ninth, the measurement on the financial effects to the city budget is important. The correlation between the tax revenues contributed by a firm and the city budget should be analyzed on an annual basis. Moreover, the investment to the city in economic development is another factor to examine the strength of local economy.

Tenth, the business site selection is another issue that a future study can examine. From reviewing internal reports of the firm, I saw no evidence that the firm would move to another city, if it lost the tax abatement assistance. This internal issue could be further explored by more in-depth qualitative research.

Eleventh, using different simulation modeling techniques and different settings in risk analysis would influence the financial output. There are many software and analytical tools for risk and uncertainty analysis. A comparative output from different

tools would make the risk analysis more objective and accurate. Using different distribution functions and settings when running simulation modeling will produce different outcomes.

The complexity involved in this case explains why economic development is not just a single game, in particular under the implementation practiced by the public and private sectors. Although some literature indicates the difficulties and problems in measuring the incentives and outcomes of economic development (Bartik, 1991; Reese, 1997b), this case study provides new methods and research designs to evaluate political considerations and economic effects of an economic development program and partially fills some of the gaps in the economic development literature.

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APPENDICES

Appendix I Definitions

Ties: a tie is a linkage between a pair of actors.

Actor: actors are discrete, individual, corporate, or collective social units.

Blockmodel: A blockmodel is a model, or a hypothesis about a multirelational network. It presents general features of the network, such as the ties between positions, rather than information about individual actors.

Density table: A density table is a matrix that has positions rather than individual actors as its row and columns, and the values in the matrix are the proportion of ties that are present from the actors in the row position to the actors in column position.

Dyad: a dyad consists of a pair of actors and the (possible) tie(s) between them.

Group: a group is the collection of all actors on which ties are to be measured. It consists of a finite set of actors who for conceptual, theoretical or empirical reasons are treated as a finite set of individuals on which network measurements are made.

Image matrix: An image matrix is a summary of the ties between and within positions, so that each ties is coded as either present or absent between each pair of positions.

Relation: a relation is the collection of ties of a specific kind among members of a group.

Social network: a social network consists of a finite set or sets of actors and the relation(s) defined on them.

Subgroup: a subgroup consists of any subset of actors and all ties among them.

Triad: a subset of three actors and the (possible) tie(s) among them.

Appendix II Letter to Interviewees

December 12, 2000

Dear Mr. XXX:

Economic development efforts by cities have changed dramatically over the last two decades. Federal policies and later a reduction in federal support for economic development impacted the traditional approach to local economic development. City officials embraced a more entrepreneurial approach to economic development and invited the private sector to participate as partners in their efforts. Public-private partnerships, in fact, are an important element of local economic development today. However, research on the process of building these partnerships is scarce and information about cooperative agreements often is limited and subject to misunderstanding by individuals outside the process. I am interested in providing a better understanding of the complex process as well as the level of effort required to develop an effective public-private partnership.

I am a researcher at the University of New Orleans. I have been studying public-private partnerships for several years both in Taiwan and the United States. While doing research for another project in California, I became acquainted with economic development activities in Carson. In particular, I learned of a public-private partnership involving the development of a polypropylene plant in Carson that would link activities at one industrial site in the city to another, while creating more jobs for city residents. This project piqued my interest and I decided to examine the partnership process as part of my dissertation on local economic development.

The research requires that I talk to the individuals involved in the public-private partnership. The goal of these interviews is to gain a better understanding of cooperative agreements between the two sectors. The knowledge gained through my research should be valuable to both academics and professionals interested in economic development. While your participation is voluntary, I am hoping to get the fullest possible understanding of this public-private venture by talking to all parties involved in the process.

I will be contacting you in the next few weeks to schedule an interview at a time convenient for you. This in-person interview should take no more than an hour. If you have any questions about my project, please call me at (504) 828-XXXX or (504) 280-XXXX. Thank you for your consideration.

Sincerely,

Chihyen Huang, doctoral candidate
College of Urban and Public Affairs
University of New Orleans

Appendix III Questionnaire

As I mentioned in my letter and on the telephone, I am interested in public-private partnerships for economic development. In particular, I am interested in the recent agreement between ARCO and the City of Carson concerning the construction of a polypropylene plant in the city.

Introduction Question

1. Would you please briefly describe the project in your own words?

2. Who do you think played the major role in gaining approval for the polypropylene project, that is, the most important person in the process?

Project-related Ties

3. Were you involved in the process to bring about this project? If yes, please describe your role.

4. Please look at this list of names and identify with a check under yes anyone with whom you interacted, that is spoke with or exchanged written memos or communication with, concerning the polypropylene project.

   Can you think of someone you interacted with about the project, but does not appear on the list, please add their name.

5. Of the names you checked, would you tell me approximately how many interactions you had with each person during the course of the project process (approximately from April 1998 to April 1999)

Business Ties

6. Please look at this list again. Identify anyone on the list with whom you have ever done business, that is, any person with whom you transacted business through an exchange of goods, and services, and/or information. Again, please check yes where appropriate.

   Can you think of someone you transacted business with, but does not appear on the list, please add their name.

7. Of the names you checked, would you tell me approximately how many business transactions you had with each person during the last three years (approximately from April 1998 to April 1999).

Social Ties

8. Please look at this list again. Identify anyone on the list whom you consider a personal friend. Again, please check yes where appropriate.

9. Is there anyone on the list that belongs to the same professional or service organizations as you? If yes, which organizations?

10. For each organization mentioned, identify the persons on the list who belong to the organization with you. Check yes where appropriate.

11. Again, looking at the list, is there anyone on the list that you interact with socially, that is, go out to lunch, dinner, a show or other form of entertainment with or socialize in each other's home.

12. Of the names you checked, would you tell me approximately how many times you socialized with the person over the last year?

Demographics

13. Gender: Male_____ Female_____

14. Year of Birth: _____

15. Do you live in Carson City? Yes_____ No_____

    If yes, for how many years? _____

16. Would you describe your political views as conservative, middle of the road, or liberal?

17. What is your current occupation?_____

18. Have you ever held an elected or appointed position with the City of Carson?

    If yes, what was that position?_____ When did you have it? _____

Wrap-up

19. Do you think public-private partnerships, in general, are a good way to achieve economic development goals in Carson? Please elaborate.

20. Finally, is there anything you would like to add about the Carson-ARCO polypropylene project?

Appendix IV Human Protocol Approval Form

UNIVERSITY OF NEW ORLEANS
COMMITTEE ON THE USE OF HUMAN SUBJECTS

Form Number: IJAN01 *(please refer to this number in all future correspondence concerning this protocol)*

Principal Investigator: Chihyen Huang **Title:** Graduate Student

Department: Urban and Public Affairs **College:** Urban and Public Affairs

Name of Faculty Supervisor: Vicatoria Basolo, Ph.D. *(if PI is a student)*

Project Title: Networks and public benefits in public-private partnerships and local economic development.

Date Reviewed: December 20, 2000

Dates of Proposed Project Period: From 12/00 **to** 12/01*
*approval is for one year from approval date only and may be renewed yearly.

Note: **Consent forms and related materials are to be kept by the PI for a period of three years following the completion of the study.**

☐ **Full Committee Approval**
☒ **Expedited Approval**
☐ **Continuation**
☐ **Rejected**
☐ **The protocol will be approved following receipt of satisfactory response(s) to the following question(s) within 15 days:**

_____
_____
_____

Committee Signatures:

_____ Matthew S. Stanford, Ph.D. (Chair)

_____ Scott Bauer, Ph.D.
Scott Bauer, Ph.D.

_____ Gary Granata, Ph.D.

_____ Betty Lo, M.D.

_____ Hae-Seong Park, Ph.D.

_____ Jane Prudhomme

_____ Jayaraman Rao, M.D. (NBDL protocols only)

_____ Richard B. Speaker, Ph.D.

_____ Gary Talarchek, Ph.D.

VITA

Chihyen Huang was born in Chishan, Taiwan. He received his Bachelor of Engineering degree in urban planning from Feng Chia University, Taiwan 1993. He earned his Master of Business Administration from the National Sun Yat-Sen University, Taiwan, in 1997. He started the doctoral program in urban studies at the University of New Orleans in January 1998 and completed his doctoral degree in August 2001.

His research interests include state and local economic development with a focus on the public-private partnerships, politics of public policy decision-making, economics of the public sector, public financial management, and analytical applications such as geographic information system and social network analysis. Using a mix of quantitative and qualitative analyses, his dissertation research examined the interaction between the public and private sectors and investigated the power and financial flow in a local economic development project. The study focused on urban political theories such as community power, regime theory, and public choice and their application to research in economic development. During his doctoral studies, he also worked as a research assistant and participated in several research projects, including a NSF-funded study of conjoint natural and technological disasters in two U.S. metropolitan areas, a study of a comprehensive neighborhood revitalization strategy in a low-income neighborhood in New Orleans, and a study of economic development policy in suburban and central cities in the U.S. for the National Center for the Revitalization of Central Cities.

DOCTORAL EXAMINATION REPORT

CANDIDATE: Chihyen Huang

MAJOR FIELD: Urban Studies

TITLE OF DISSERTATION: Networks and Public Benefits in Public-Private Partnerships: A Local Economic Development Case

APPROVED:

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DATE OF EXAMINATION: July 11, 2001