



Legislative Fiscal Bureau

One East Main, Suite 301 • Madison, WI 53703 • (608) 266-3847 • Fax: (608) 267-6873

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Joint Committee on Finance

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Overview of Economic Development Incentives (Commerce)

During the Committee's budget briefings on the Department of Commerce, members of the Committee raised questions or commented on government programs designed to promote economic development. In response to those inquiries and comments, this overview paper has been prepared to provide a discussion of some of the general theories regarding economic development incentives and a summary of the more recent research regarding the effectiveness of those incentives.

Economic Development Tax Incentives

The Department of Commerce administers a wide variety of financial and technical assistance programs, including 11 grant and loan programs and five different development zones programs, aimed at encouraging investment and job creation in the state. The Governor's 2005-07 budget (AB 100) includes two new grant programs, an expansion of the enterprise development zone program, restructuring of the Wisconsin Development Fund (WDF), and increased funding for manufacturing extension grants and aid to Forward Wisconsin. Table 1 provides a listing and the total amount appropriated to Department of Commerce programs that provide financial assistance for economic development activities. The table shows that \$60.5 million in economic development financial assistance would be provided under AB 100. The bill would also authorize \$243 million in enterprise development zones tax credits. The State Assembly has recently passed bills that would provide a super research and development tax credit (AB 206), establish a training grant program under the Wisconsin Technical College System Board (AB 241/SB 129), and create rural enterprise development zones (AB 208). All of these items are designed to encourage investment and job creation in the state.

**Department of Commerce Financial Assistance Programs Under AB 100
(All Funds)**

<u>Program</u>	<u>2004-05</u>	<u>2005-06</u>	<u>2006-07</u>
Wisconsin Development Fund	\$8,548,400	\$8,548,400	\$8,548,400
Brownfields Grants	7,000,000	7,000,000	7,000,000
Technology Commercialization Grants and Loans	2,600,000	2,600,000	2,600,000
Gaming Economic Development and Diversification Grants and Loans	2,838,700*	3,238,700*	3,238,700*
Manufacturing Extension Center Grants	850,000	1,500,000**	1,500,000**
Aid to Forward Wisconsin	320,000	500,000	1,320,000
Rural Economic Development Program	726,600	726,600	726,600
Minority Business Development Program	571,400	571,400	571,400
High-Technology Business Development Corporation	250,000	250,000	250,000
Training Assistance Grants***	0	2,500,000	2,500,000
Super Employment and Economic Development Zone Grants***	0	0	5,000,000
TOTAL	\$23,705,100	\$27,435,100	\$33,255,100

*Commerce is statutorily required to transfer \$300,000 annually (\$600,000 under AB 100) to fund work-based learning grants to tribal colleges.

**The program would be transferred to WTCS under AB 100.

***New program created by AB 100.

This paper provides a discussion the some of the general economic theories regarding economic development incentives, and a summary of some of the more recent research about the effectiveness of those incentives. Most of the economic development studies that have been conducted tend to measure the effects of tax incentives and business taxes on business location and expansion decisions. In the economic literature, tax incentives refer to a class of direct and indirect government subsidies to business that are not inherently part of the general tax structure. However, there are a number of economic analyses that are based on the level of taxation or the impact of other types of economic development incentives, such as grants and subsidized training programs.

This paper includes information from a number of different sources including research studies, literature surveys, state and federal government documents, interest and research organizations, and legislative reports. Relatively large sections of the paper reflect the research and economic development theories of economists Timothy Bartik, Peter Fisher and Alan Peters, and Robert Lynch. Also, sections of the paper are based on information provided in reports prepared by Dave Norris, Jr., and Elizabeth Higgins for the Louisiana Department of Economic Development, Brian Klinksiek for the City of San Francisco, and Gary Guenther for the Congressional Research Service. The results of numerous academic studies and surveys are referenced throughout the paper. However, in certain cases the reported results of specific studies that are included in this

paper were obtained from secondary sources such as literature reviews or other studies. In instances where this occurs, the reported results are from more than one secondary source. The reference to the study is included in the text to properly attribute the finding to the actual author of the analysis. However, only the direct sources of information are included in the references for this paper.

Research Methods

In general, there are five basic methods of evaluating the impact of tax incentives have been developed:

Surveys. Researchers have surveyed executives to determine what role incentives (and other locational factors) play in a firm's relocation and expansion decisions. Surveys can provide direct information about actual siting/expansion decisions made by executives, without requiring the complex assumptions used in econometric models. However, it can be difficult identifying the group of individuals within a business who were responsible for a particular location/expansion decision, and executives have an interest in saying incentives were important.

Case Studies. The case study approach, measures the effect of a specific incentive program by comparing the impacts of the program to prior conditions or comparable area economies. This method can provide analysis of a wide variety of specific programs, such as development zones, research parks, and tax abatements. On the other hand, measuring the specific effects of the program is difficult because of the influence of other factors that contribute to economic growth, and in identifying a control group to be compared with.

Econometric Analysis. There is a large amount of literature on econometric studies of economic development incentives, but, as noted above, most of the models concern taxes. The statistical techniques on which econometric models are based allow the researcher to hold constant other important factors, and focus on one policy factor at a time. However, it is difficult to accurately measure some factors, such as labor costs relative to labor quality, and not omit certain variables, such as local growth patterns.

Equilibrium Models. General equilibrium models measure the impact of tax policy on the location of economic activity. These models have an advantage over econometric models in that they specify the structural relationships and, as a result, interactions between economic variables in the model. Relatively little work has been done in this area.

Hypothetical Firm. Hypothetical firm models attempt to replicate the operating ratios, balance sheets, and tax statements of real firms, to measure the impact of taxes and incentives on the firm's income. This allows researchers to calculate exactly what effects a state's or city's taxes would have on a firm's income. Generally, the hypothetical firm approach ignores the effects of certain other factors, such as state and local government services, in expansion/location decisions.

A recurring issue in economic development literature is how to address methodological problems that occur in attempting to evaluate the effectiveness of incentive programs, regardless of the type of study. A problem that is frequently cited in the literature, and one that should be considered in evaluating any economic development incentive, is determining what would have occurred in the absence of the program (establishing a reliable control group). Without a valid control group (a group of firms and economic conditions identical to those receiving the incentives) researchers cannot fully account for the effects of other changes in the economy, the natural development of the business, and selection bias (participating firms are more likely to be successful without the assistance).

Financial Incentives

Although most of the literature concerning economic development incentives analyzes the effect of taxes, the conclusions are generally applicable to most types of direct and indirect financial assistance programs. Tax incentives are functionally equivalent to grants to firms, except that they operate through the tax system. There are tax incentives that function like matching grants, such as investment tax credits that equal a certain percentage of expenditures or jobs tax credits that provide a certain amount per job created. There are also tax incentives that function like lump-sum grants because they don't vary with investment amounts.

The following sections provide a summary of economic development literature and the related issues. The first section describes the literature and basic economics of economic development incentives from the perspectives of their influence on business investment and location decisions, impact on economic growth, distributional effects, and cost-effectiveness. The last two sections provide a review of the relationship of small business and public services to economic development.

Economic Development Incentives--Theory and Research

Business Investment and Location Decisions.

According to traditional location theory, a business will evaluate alternative sites for new investment based on the profitability of the marginal investment in each location. From this perspective, taxes and incentives are a locationally variable business cost that, at the margin, will influence location and investment decisions. The value to the firm of the tax provisions and incentives is the amount they add to the profitability of a new investment in that locality. Profitability is measured as returns on investment usually calculated as increased cash flow or an increased internal rate of return. As a result, government could influence business investment and location decisions by changing the after-tax profitability of operating at different sites.

Selection Factors

However, local variations in other factors may be equally, or more, significant than taxes in location and investment decisions. Anything that affects a business' costs, revenues, or productivity, is important (Klinksiek 2004). Generally, these factors include:

Prevailing Wages. There can be great differentials in wage levels between certain job markets. The costs of locally-supplied labor can be 14 times state and local business tax costs. Small differences in labor costs can outweigh large differences in tax costs. One study found that a 2% difference in wages could offset as much as a 40% difference in taxes. (Cornia, Testa, and Stocker, 1978). Businesses will seek markets where they can employ the type of workers they need at the lowest possible wages.

Labor Force Quality. Great differentials in workforce skill levels and education can exist between different locations. Firms seek regions where workers with the necessary skills are available for competitive wages.

Proximity to Suppliers and Final Markets. The location and access to firms that supply inputs and the location and access to markets for products are important factors. This not only means physical proximity but also access to ports, airports, and other transportation infrastructure. In summarizing literature concerning the relationship between public services and economic development in the area, Fisher (1997) found that transportation services and highway facilities showed the most evidence of such a relationship.

Energy and Resource Costs. In making location decisions, businesses consider the cost of electricity and fuel and the availability of water and other resources. Businesses will seek locations where energy and other natural resources they require are available at low rates.

Real Estate Costs. Most businesses require some office space, and many require sites for industrial or other operations. Real estate costs can vary considerably between regions. Firms will seek areas with quality locational or expansion space at reasonable prices.

Agglomeration Benefits. Agglomeration benefits are efficiencies realized by firms that cluster with other firms and obtain better access to inputs, labor force, markets, and other dynamic advantages, such as innovative capacity (Porter 1996). Two types of agglomeration benefits are recognized: "industrialization economies" that accrue to firms by locating near firms in the same industry, and "urbanization economies" that accrue to businesses by locating near businesses in other industries.

Quality of Life. Businesses prefer to operate in areas where quality of life factors such as the quality of schools, health care, recreational opportunities and climate are desirable. Richard Florida, Professor of Regional Development at Carnegie Mellon University, ties lifestyle issues directly to economic development. Florida (2002) argues that a new social strata of highly educated,

innovative workers including scientists, engineers, educators, writers, artists, and entertainers--the "creative class"--have become critically important to the growth of high performing regions of the world. Characteristics such as creativity, individuality, and diversity are common to these types of people, and they seek places that are culturally active and tolerant of diversity. Companies have located in such areas and have restructured the workplace, allowing for casual dress, more open office layouts, and flexible schedules. Florida believes that attracting the creative class is a better strategy for growth than the more traditional economic development strategy of attracting the companies that employ them.

Public Services. Government provided services can directly or indirectly support business. Direct government services include police and fire protection, public infrastructure, such as sewer and water systems, transportation (roads and public transit), business financial assistance, and sanitation. Indirect government services include public education, the court system, and land-use planning. Public services can attract private investment because they provide an un-priced input to production or, are associated with a lower price for an input used by business (Bartik 1991). For example, high quality schools can be helpful in attracting employees.

Decision-Making Process

Location and investment decisions are complex and are usually part of sequential set of decisions at increasingly refined geographical scales. Robert Ady (1997), a former executive consultant for the Fantus Corporate Real Estate Group of Deloitte & Touche has described the stages of the decision-making process based on his experience, and on Fantus' database showing the relative importance of location factors to clients.

Ady notes that the selection process is one of elimination. The business starts with a universe of locations and systematically eliminates those with the greatest disadvantages and the fewest advantages for the project, until the single location with the most advantages and fewest disadvantages is identified. Although companies can use wide varieties of factors (some have lists of hundreds) the factors can be divided into three basic categories: operating costs, operating conditions, and quality of life. However, locations criteria are different for different business sectors and different firms within a sector.

The specific selection process uses a set of screens that systematically eliminate the least favorable locations. As described by Ady, the location process involves the following steps.

Initial Screening. The initial stages of the screening process define the area of search by identifying the broad region and individual states that comprise the region. At this level, the relative importance of each location criterion will be different for each individual project. The focus typically is on macro wage differentials, usually at the state level, transportation variations (in the case of manufacturing facilities), and key "fatal flaw" criteria, such as port facilities, that could eliminate locations at the start. Taxes are usually considered generally and on a comparative basis. If a state is not "reasonable competitive" it would probably be eliminated.

Community Selection. At this stage, the general area of search has been defined and could represent a geographical region, a number of states, or a group of counties. Based on Fantus data for the early 1990's, Ady listed the relative importance of location factors for a typical manufacturing operation and a back office operation. For manufacturing firms, labor and manufacturing costs were most important, followed by utility costs and site occupancy. For the office operation, labor costs were the most important costs, followed by occupancy and utilities. Taxes followed these factors in importance for both type of firms, because they represent only a small proportion of geographically variable operating costs. Quality of life factors are also considered during this step.

Final Selection. This level of screening involves a direct and thorough comparison and ranking of three to five locations that offer the greatest advantages and the fewest disadvantages for the proposed projects. At this stage, all taxes and incentives affecting the project are developed, evaluated, and compared, one location against another. Operating costs are calculated for the operation at each community, and for 15 to 20 years into the future under various assumptions. At this level, public services are also measured. Ady notes that, for Fantus clients, education was found to be the single most important service.

Despite formulas such as this, real-world location decisions could be based on the intuition or the desires of corporate officers, or on detailed accounting analyses (Klinksiek 2004). Some believe that, because of the sharp decline in the relative costs of transport and communication, business production activities are increasingly free to be sited at a wider variety of locations. Cheaper transport of inputs and outputs, and easier use of communications and computer technology to coordinate business activity, allows businesses to operate at a wider variety of sites. Because there are many more sites that are acceptable locations, businesses are more sensitive to local costs such as taxes and wages (Bartik 2004).

Location Decision Literature

Generally, studies, other than surveys, conducted during the 1960's, 1970's and 1980's found that taxes and tax incentives had little effect on business location and investment decisions. Bridges (1965) reviewed data on the effect of state and local tax inducements and concluded that state and local financial incentives were not a primary consideration in a firm's location decisions. In a comprehensive survey of the literature on the effectiveness of state business incentives Wilson (1989) found that such incentives are not the primary or sole influence on location decisions.

Survey research has produced conflicting results. Premus (1982) found that 67% of high-tech firms surveyed listed taxes as significant or very significant in influencing state location and expansion decisions. Schmitt (1985) surveyed 950 companies in Michigan and found that the city's general business climate, or attitude toward business was the top factor in location decisions. Financial inducements ranked fourth. Walker and Greenstreet (1989) found that 37% of new Appalachian manufacturing plants that were offered tax and other financial incentives indicated that the incentives were decisive in their final location decisions. Rubin (1991) determined that 32% of

New Jersey firms receiving enterprise zones tax incentives reported that the tax incentives were the primary or only reason for locating in the zone.

On the other hand, in Schemenner's (1982) survey of Fortune 500 companies, only one percent listed taxes as a decisive factor for firms selecting a geographical region for a new branch plant. However, 35% listed low taxes as a desirable factor. Kusmin (1994) found little evidence that the level of state and local taxation figured prominently in business location decisions.

In comprehensive reviews based on 75 studies on the effects of state and local taxes on economic development completed between 1979 and 1994, economist Timothy Bartik (Bartik 1991, 1992, 1994) found some evidence of statistically negative effects of state and local taxes on regional business growth. Using marginal tax rates to measure the effect of taxes on new investment, Papke (1991) concluded that taxes played an important role in location decisions for certain industries. Phillips and Goss (1995) analyzed the studies reviewed by Bartik and found that their analysis generally support the conclusions that the effect of taxes on business location decisions is modest. Wayslenko (1997), in a survey of recent econometric studies, including Bartik, generally supported the conclusion that state and local taxes have a small, statistically significant effect on interregional location behavior. Hassett and Hubbard (2002) studied the effect of taxes on investment decisions and concluded that tax effects were of moderate importance, once one accounts for the cost of adjusting the capital stock in response to changes in marginal tax rates.

Using a hypothetical firm model, Fisher and Peters (1998) analyzed the effect of state and local taxes and tax and non-tax incentives on 16 firm types in 112 cities in 24 states. Averaged over these firms, a package of non-tax incentives (infrastructure subsidies, customized job training, and general purpose grants), expressed in terms of present value wage equivalence, was worth about 9 cents an hour (about \$3.60 per week) per employee. Tax incentives had a wage equivalence of 7 cents per hour (about \$2.80 per week) per employee. In the most extreme case, a hourly equivalence of \$1.82 divided the top- and bottom-ranked cities. The authors conclude that since most cities were not at the very top or very bottom of the range, but in the middle, tax and incentive differentials may or may not have a decisive impact on plant location decisions. Other cost factors at the various competing sites will be more important. Instead, Fisher and Peters believe that the greatest impact of tax and incentive regimes may be to exclude certain locations at the outset of the process of competing for new investment.

The same authors conducted a similar hypothetical firm study of the effect of tax incentives on new plant investment for 16 manufacturing sectors in 75 enterprise zones in 13 states. They calculated the hourly wage differential at a new plant location that would provide the firm with the same present value of cost savings over 20 years as the incentives available at that location. The incentives were equivalent to a 1.6% to 7.1% reduction in wages. Fisher and Peters note that a relatively small wage differential would be sufficient, in many locations, to eliminate the advantage of the incentives. The authors conclude that it was unlikely that the incentives had much of an impact on the location of new business investment.

Economist Robert Lynch (2004) has argued that there are flaws in the argument that the tax burden influences investment, expansion and location decisions because: (a) state and local taxes reduce profits by relatively small amounts; (b) after-tax rates of profit within industries do not vary significantly by state; and (c) taxes finance public services that can reduce business costs. Lynch points to a study of 14 industries in the six Great Lakes states (Papke 1995) that found after-tax rates of profit were almost identical within industries across the states for firms with the same pretax rates of return. Similarly, Mead (1999 and 2000) calculated the user cost of capital in four industries between 1967 and 1997, and found that, despite differences in effective tax rates, the user cost of capital across states were virtually identical. (The user cost of capital represents the annualized cost of purchases of additional units of capital. Everything else equal, businesses will invest where the user cost of capital is lowest.)

Although economic studies provide conflicting information about the influence of tax incentives on business location and expansion decisions, many recent summary reports (Klinksiek 2004, Norris and Higgins 2004, Austrian and Norton 2002) indicate that incentives can have an effect at some level. Tax levels do make a difference at certain points in the process of identifying sites for investment. As Fisher and Peters indicate, relatively severe tax regimes could be viewed as "fatal flaws" and cause certain areas to be eliminated from initial consideration. More commonly, it is believed that taxes matter primarily at the final stages of decision making when only a few possible investment sites remain that share many of the same characteristics, such as labor costs and quality. Moreover, incentives are likely to have a much larger effect on location decisions among different communities within the same region or metropolitan areas, because those areas offer similar access to labor resources and markets. In contrast, different locations across states may not be good substitutes, because of greater differences in labor, resource and access costs. As a result, a smaller amount of incentives would be necessary to potentially influence location and expansion decisions among different communities within the same metropolitan area.

Tax Incentives and Economic Growth

Although states have been subsidizing private industry with public money since the 19th century, state and local economic development activities began a rapid and widespread growth in the mid 1960's. Eisinger (1988) found that, from the mid-1960s through the mid-1980s there were large increases in the variety of instruments available to state officials and in the use of those instruments. There was some evidence of a slowdown in economic development in the early 1990s. However, subsequent years saw Alabama provide a reported \$250 million in benefits to attract Mercedes-Benz operations to the state, and South Carolina provided an estimated \$130 million to BMW to locate its operations there. Generally, over time, state economic development activities have evolved so that businesses that are relocating or starting new operations regularly receive incentive packages consisting of combinations of state and local subsidies.

In this environment, economic development incentives are justified as necessary to attract new investment and jobs to the state. The investment and related jobs and spending are viewed as benefiting state residents through employment and higher wages, while expanding the government's

revenue base. As a result, the ability to provide residents with services will be enhanced, or the per capita cost reduced. The economic growth stimulated by the investment activity will increase the incomes of residents.

Bartik (2003, 2004) indicates that it plausible that public subsidies for economic development might make a difference in attracting or retaining a business, which could produce social benefits such as increased investment and employment, and a stronger state and local fiscal condition. The author argues that economic development policies are more likely to increase the total number of jobs in the local economy when the policies assist new businesses or businesses that either add to the export base (goods and services sold outside the jurisdiction) or reduce local imports (goods or services purchased in the jurisdiction, but produced outside). If the economic development policies encourage expansion of business' activities that do not produce exports or reduce imports, then that business' increased sales could come at the expense of reduced sales for other local businesses. Bartik also notes that assisting firms can increase local growth if the assistance results in the use of land or labor that would otherwise be unemployable. An example would be developing brownfields sites that would otherwise go unused, or hiring disadvantaged individuals who would otherwise remain unemployed.

Decisions of existing local businesses concerning expansion, contraction, or closing affects the local economy. According to a study by Davis, Haltiwanger, and Schuh, (1996), during a typical one-year period, about 10% of all manufacturing jobs are destroyed by plant contractions and closings, and about 10% of total manufacturing employment is added by plant openings and expansions. Of the jobs added by plant openings and expansions during a one-year period, about 85% are due to existing firms expanding. Many of these plant expansions and contractions are large. Almost 60% of the jobs created in manufacturing by expansions during a typical one-year period are due to a business that is increasing its employment by 25% or more, while approximately 67% of the jobs destroyed in manufacturing by plants that close or contract are due to the business decreasing its employment by 25% or more. Because large expansion and contraction decisions cause a significant amount of employment change, it may be possible to have significant effects on local employment by affecting a relatively small number of business decisions.

Focusing on business retention as an economic development policy can also be beneficial due to the relationship between local businesses and the local labor force, suppliers, and other institutions. Because local businesses use more local suppliers and hire locally an increase in the output of the local firm is likely to have a multiplier effect on the local economy, provide employment to local residents, and involve less in-migration and therefore lower government service costs.

Many of the tax and other incentives provided by government are directed at creating or retaining jobs. Unemployed residents benefit from the new jobs that are created while other workers benefit because the new jobs allow them to move into better paying jobs. Bartik (2004) writes that the benefits of greater job growth in an area are provided by earnings increases for local residents as the level of employment increases and earnings increases for residents who move into better paying

jobs as result of tighter local labor markets. In addition, local business profits increase. Property values and the local tax base will also grow. The total increase in jobs, will be greater than the jobs created by assisted businesses because the expansion of the assisted businesses will require additional inputs from suppliers, some of which are likely to be local firms. In addition, employment growth will generate additional demand for products and services from local businesses, causing some of these businesses to expand.

According to Bartik (1991,1993), a 1% increase in local job growth is associated with a long-run (more than five years) increase of 0.8% in local population. One percent additional job growth is associated with an 0.2% increase in the local employment rate (ratio of employment to population), as residents increase labor force participation, due to the acquisition of better job skills and experience. Similarly, a 1% increase in job growth is associated with a 0.2% increase in average real wages, but due entirely to local residents moving into better paying jobs. Real wage increases just match the increases in local prices. Also, local property values increase 0.4%, while the local tax base would be expected to increase, at least proportionately with the increase in the local population. Bartik notes that these benefits need to be offset against costs related to growth, including increased public services required by expanding population and employment, environmental costs, the value of forgone non-work time (reservation wages) for local residents, and the costs of the incentives themselves.

The wealth of a local economy can also expand through productivity increases. An economic development incentive that increases the productivity of the assisted business would increase local economic growth if the value of the incentive exceeded the incentive's cost.

A final way in which economic development incentives could increase local economic growth is by correcting "market failures." Bartik identifies "market failures" as cases where inputs to production are inefficiently supplied where a different ratio or amount could increase productivity by more than the cost of the inputs. Market failures could include: (a) lack of information about potentially more optimal production techniques from private market sources; (b) low levels of research and development activities because benefits will accrue to other businesses; (c) lack of access to capital for high-risk projects; (d) lack of labor training activities due to significant costs and risk of employee turnover; (e) limited availability of land due to zoning restrictions and individual owner market power in assembling parcels for large sites; and (f) lack of necessary public infrastructure. These possible market failures indicate that there may be a way to generate benefits in excess of costs from some other arrangement.

Economic Growth Literature

Studies of the impact of taxes and tax incentives on economic growth tend to mirror the results of the business location studies, and often location decisions and their impact on growth are linked in the same studies. Many of these studies attempt to determine the tax elasticity of economic activity, which measure the responsiveness of economic growth to taxes or incentives.

Elasticity measures the proportional (percent) change in economic growth relative to the proportional change in taxes.

Again, in 1970s and 1980s economists reported no association between general tax levels and economic growth. In fact, many reported negative associations between tax cuts, tax exemptions and economic growth and business location decisions. (Wayslenko, 1981; Steinnes 1984; Pomp, 1988). In his review of the role of tax incentives on firm location, Wayslenko found that taxes and fiscal incentives might attract firms to localities, everything else being equal, but firms also located in high-tax localities if they provided higher quality public services and labor. As a result, taxes and incentives had little or no effect on local economic growth. Steinnes identified a technical flaw in studies that indicated financial incentives encouraged economic growth, and Pomp identified numerous factors other than taxes and incentives that influenced economic growth. Based on his survey, Wilson (1989) concluded that there was no statistical evidence that business incentives actually create jobs or cause a transfer from one state to another.

Timothy Bartik's research, that began in the early 1990's with his review and analysis of 75 econometric studies, has led to a view among a number economists and economic development professionals that state and local business taxes have modest but significant effect on economic development. Based on his research, Bartik estimated that, holding public services constant, the consensus long-run elasticity of state or metropolitan area business activity with respect to taxes is in a range of -0.1 to -0.6. This implies that a 10% reduction in business taxes would increase the area's employment or output by between 1% to 6%. A number of economists used Bartik's study as a basis for further analysis. Phillips and Goss (1995) used the same group of studies and produced very similar conclusions, but with a wider range of elasticities. In one of the more important studies since Bartik, Wayslenko (1997) found that a large share of the elasticity estimates in Bartik's study showed less responsiveness than the -0.3 average. Wayslenko suggested the appropriate estimate of interregional elasticity is -0.2.

Bartik's findings represent a view held by many economists. Bartik argues that ability to locate production facilities at a wider variety of sites because of cheaper transportation and communications costs helps explain why research "increasingly shows a statistically significant but modest effect of state and local tax rates on economic development." Bartik concludes that reviews of economic development literature suggest that the long-run elasticity of a state or metropolitan area's business activity with respect to state and local taxes is between -0.2 and -0.3. This means, holding state and local public services constant, that a 10% reduction in effective state and local business tax rates will increase the long-run level of local business activity by 2 or 3 percent.

However, this view is not universally held. In a review of Bartik's analysis, McGuire (1992) questions whether Bartik's evidence supports his conclusions. She points to a study conducted by her and Wayslenko (1985) that was included in Bartik's analysis and showed eight of 28 tax coefficients statistically significant. McGuire writes that she would "interpret 20 insignificant coefficients out of 28 possible as providing a preponderance of evidence against taxes having an effect". More recently she was coauthor of two studies of metropolitan areas, one of Washington

D.C. (Mark, Papke, McGuire, 2000) and Chicago (Dye, Merriman, McGuire, 2001). The Washington D.C. study attempted to identify which environmental and policy factors explained the relatively poor economic performance of the city. The Chicago metropolitan area study attempted to determine the impact of the Cook County property classification system on the county economy. Although the results of the studies were mixed, McGuire writes that it is difficult to be convinced that taxes are an important factor in explaining differences in business location decisions and economic activity between states or regions. Reflecting on many years of tax-study blue ribbon commission membership, McGuire argues that the evidence does not allow economists to comfortably advise lawmakers that reducing the corporate income tax rate or the personal income tax rate will revive a flagging state economy."

Lynch (2004) is also critical of the conclusions drawn from econometric studies like Bartik's, arguing that the results are often inconsistent, not reproducible, and unreliable. Elasticities vary widely from study to study. In Bartik's compilation, over 30 studies showed little or no effects on economic activity, with elasticities ranging from negative 0.3 and positive 0.2. Using data from the 1980's instead of the 1970s, newer studies did not find taxes a significant determinant of employment growth. Moreover, statistical significance does not necessarily mean economic significance. Lynch argues that even if the research results are accurate, they do not support the notion that state and local tax cuts and incentives can be counted on to create numerous jobs. Using Wayslenkos' elasticity estimate (-0.2), Lynch estimates that, over a 20-year period, a 1% reduction in all state and local taxes would create an estimated 840 jobs a year in New York, 260 jobs a year in Maryland, and 26 jobs a year in Wyoming. Lynch also argues that tax reductions and incentives are not cost-effective methods for creating jobs, and that the interrelationship between taxes and public services provided needs to be considered.

Specific Literature on Jobs Tax Credits

Because creating and retaining jobs is a primary objective of every state's economic development programs, many states provide tax incentives for employment. A subset of economic development literature attempts to analyze the effectiveness of employment-related tax credits.

Bishop and Montgomery (1993) surveyed more than 3,500 private employers to determine the effects of the federal targeted jobs tax credit on the level of employment and the type person hired by a firm. The results suggest that at least 70% of the tax credits granted to employers were for workers who would have been hired without the tax credit. Gabe and Kraybill (2002) conducted an empirical study of Ohio businesses to determine the effect of state tax incentives on employment. They found that the incentives had little effect on actual employment levels, but a positive effect on announced job growth. Companies had been overestimating the number of jobs that would be created in order to receive incentive packages. Faulk (2002) compared the change in employment in Georgia firms that participated in employment tax credit programs with nonparticipants between 1993 and 1995. Faulk found that the number and proportion of jobs attributed to the tax credit was small relative to the total number of jobs for which a credit was

awarded. Between 2,301 and 3,299 (28% to 41%) of the 7,951 total jobs credited could potentially be attributed to the tax credit.

Differential Effects of Taxes and Incentives on Industries, and Capital and Labor

In their study of the effect of enterprise zone tax incentives, Fisher and Peters (2002) focus part of the analysis on the effect of taxes and incentives on different industries and the use of capital and labor. Since taxes and incentives are generally applied equally to most industries and businesses, they can provide relative advantages to some kinds of firms and disadvantage others. Also, tax incentives may lower the cost of capital or of labor or of both. As a result, they may not provide an incentive to expand employment, but rather encourage the substitution of capital for labor. Incentives are not neutral by sector, factor of production, type of capital, and by new versus old investment.

Differential Effects on Industries. In the 75 cities in their sample, Fisher and Peters found considerable variation in the industrial sectors that were taxed most heavily. Moreover, they did not find the same industries always being taxed more lightly or heavily in different cities. The variation in effective tax rates was due primarily to differences among industries in terms of profitability, asset composition, and the relative importance of capital and labor. The variation was also a result of differences in the relative importance of income, sales, and property taxes, the makeup of the property tax base, and the nature of tax incentives. More profitable firms are at a relative disadvantage in jurisdictions that the corporate income tax is significant. Businesses with high proportions of real property (buildings and land) are disadvantaged in jurisdictions with high property tax rates, while firms with substantial inventory face a relative disadvantage in jurisdictions that impose property taxes on inventories. On the other hand, capital-intensive industries benefit from incentives linked to capital investment, while labor-intensive industries benefit from incentives tied to job creation.

To the extent tax rates affect location decisions, the competitiveness of a particular locality for a particular industry is not the absolute tax rate, but that locality's tax rate compared to tax rate on that industry in other localities. For example, a city could target the printing industry for tax incentives, but that city's tax burden could be much higher than the tax burdens imposed on that industry in other cities. Fisher and Peters found that in most states, variation in tax rates and incentives within cities was substantial and played a significant role in determining which sectors were taxed more or less heavily. Overall, the average city imposed a tax rate on its most favored industry that was 38% of the tax rate on the least favored industry. There was, however, sufficient variation within most states that most cities were competitive for at least one sector.

The authors note that this amounts to an implicit industrial policy, with states and cities providing favored treatment to a few industrial sectors. They argue that this amounts to a policy developed almost by default, and more consideration should be given to the differential impacts of specific incentives specific sectors and industries.

Differential Effects on Capital and Labor. Tax incentives are functionally equivalent to grants to businesses. Capital tax credits and property tax abatements, such as investment tax credits, which lower the price of capital goods operate as matching grants. If the incentive is a percentage of the cost of capital, the amount of the incentive increases as the amount of capital investment increases, and the public sector matches private capital spending. Incentives that lower the price of labor, such as jobs tax credits that equal a specified amount per job or percentage of wages, or employee training programs that underwrite a portion of the initial cost of labor, act as labor matching grants. Incentives, such as gross business income exclusions, that reduce taxes and increase profits, effectively reduce all production factor prices proportionately. Other economic development incentives, such as infrastructure improvements that operate like lump-sum grants because they do not vary with profits or the size of the business. To the extent the incentives have a limit on the total allowable tax credit and/or are not refundable, they operate like lump-sum grants. Firms reaching the maximum, or offsetting their total tax liability cannot receive an increased credit for further increases in investment or employment. As a result, at the margin, there is no price effect on the factor of production.

The possible effects of incentives on a business' choice of technology and the relative use of capital and labor in the production process, depends on incentive-caused changes in the prices of capital and labor, and not on the absolute amount of the incentives. Incentives can cause both an income effect and a substitution effect in the use of production factors. By lowering the cost of capital or labor to the firm, the firm can lower product prices and increase demand for the product. In turn, the business would increase its production and, as a result, its use of capital and labor. The level of demand that could be generated depends upon elasticity of demand--how much the product price reduction increases sales. Incentives can also cause a substitution effect by lowering the price of one factor (capital or labor) relative to the other. If the incentive is targeted to one factor, such as a capital investment tax credit, it would make that input (capital) relatively cheaper than the other factor (labor). To the extent it is possible, the business may substitute the use of the relatively lower cost factor for the other. In some cases, incentives may be provided for business investments that would have been undertaken in any case. For such firms, the increased demand for production factors would not be caused by the incentive. However, by changing the relative prices, the incentive could cause the substitution of one input factor for the other. As a result, use of a targeted incentive, could actually reduce net demand for the non-targeted factor.

Empirical studies of manufacturing have indicated a high degree of substitutability between capital and labor (Berndt and Christensen 1973; Huang 1991). As the price of capital falls relative to labor, firms will adopt more capital-intensive methods of production and substitute capital for labor. Fisher and Peters found that in 11 of the 13 states with enterprise zones, the effect of incentives was to lower the relative price of capital. The authors indicate that, given the substitutability between capital and labor reported in empirical studies, it is likely that the capital bias in incentives would cause firms to adopt more capital-intensive methods of production. The substitution of capital for labor would occur in the firms benefiting from the subsidies, and if it was large enough, it is possible the net effect of the incentive would be to lower, rather than increase employment.

Fisher and Peters also note that labor incentives are usually calculated as a fixed dollar amount per new job or as a percentage of wages up to a ceiling. The ceiling is generally below the typical manufacturing wage rate so that the incentive is equivalent to a lump sum per job. These incentives do not encourage creation of more-skilled or better paid jobs, and also encourage quantity over quality. A credit as a percent of payroll or a low per employee amount is maximized when employees are hired near the bottom of the pay scale. The authors argue that, if the object of the policy is to stimulate job creation, capital incentives should be replaced with labor "matching grants" that provide firms a percentage reduction in the wage rate. Any ceiling on wages eligible for such a credit should be high enough to hire more-skilled workers.

Cost-Effectiveness of Tax Incentives

Even if tax incentives do influence business investment and location decisions which generate new employment and economic growth, they may not be fiscally cost-effective for government. A few studies attempt to measure the cost-effectiveness of economic development incentives. Such studies often use the measures of elasticity developed as a basis for determining the cost of each job in terms lost tax revenues. A number of economists argue that economic development incentives are more likely to be cost-effective if they are targeted to economically distressed areas with high levels of unemployment.

Cost-Effectiveness Literature

In their study of state enterprise zones, Fisher and Peters use the average elasticity of business activity to taxes of -0.3 calculated by Bartik and an estimated national average business tax revenue per job, to compute a national average per job revenue loss of \$3,780 as a result of reduced taxes. They applied the same methodology to their sample of 75 enterprise zone cities and calculated a net state and local revenue loss of about \$7,000 per year for each new job attributable to a tax reduction. Net losses occur because it is not practically possible to target tax reductions only at firms that would have otherwise invested or located in another municipality or state. As a result, tax benefits are provided to businesses that would have made the same investment and location decision without the tax benefits. The revenue gains from firms that were induced to move or remain in region will be more than offset by the revenue losses from other firms that also received tax reductions. Fisher and Peters argue that for state and local governments to break even, it would take an elasticity of business activity with respect to tax reductions to equal 1. However, there is substantial evidence that the interstate or inter-metropolitan elasticity is much less than 1, and these kinds of tax reductions cost state and local governments revenue. The authors note that much of the research reviews the levels of taxation, and therefore estimates the effects of across-the-board reductions in taxation. They conclude that, for tax incentives structured as a permanent tax reduction on income from new investment and under certain conditions, the sensitivity of economic growth to incentives granted only for new investment would be in the range of -0.2 to -0.4.

Fisher and Peters also used their enterprise zone model to measure the effect of specific incentives. They found that, on average, each new induced job produced a revenue gain of

approximately \$18,200, while this was offset by an average revenue loss of \$7,800 for each non-induced job. However, they also determined that for every 100 gross new jobs created each year, there would be just nine that were induced by incentives. Over the next 20 years, the nine jobs would generate a revenue gain of \$163,800 (9 x \$18,200 per job gain). The other 91 jobs that were created in the same year would produce a revenue loss of \$709,800 (91 x \$7,800 per non-induced job). The net state-local revenue loss was \$546,000, or about \$60,700 per new job. Converted to an annual flow, state and local governments would lose about \$7,130 for each job gained.

It should be noted, however, that this analysis only measures the direct revenue effect from the firm. It does not include measures of secondary effects such as increased income taxes from in-migrants or previously unemployed individuals, or increased taxes from businesses that experience growth in sales and employment generated by the new business. Nor does the model take account of any increased state and local service costs. Fisher and Peters also found that incentives resulted in negative tax rates on new investment, so that the investment in a new plant was subsidized, even if the entire business was not.

Lynch (2004) used elasticities of -0.2 and -0.1 to calculate the cost, in terms of lower tax revenues per job created by tax reductions. He estimates a net revenue reduction of between \$39,400 to \$78,800 per job. However, his estimates do not account for additional income taxes paid by new employees, nor the additional expenditures for public services provided to new employees and their families. Lynch quotes Bartik (1992) to express his view that "...the households attracted by the new jobs are likely to cost more in services than the tax revenue they generate."

Bartik (2004), using data from Fisher and Peters, calculates the estimated cost per job of about \$2,800 per worker in some enterprise zones. He notes that, based on business location literature, reducing business taxes through an incentive offer of \$2,800 per job, compared to no incentive offer, would increase the probability of a new plant choosing the state by about 0.3. This implies that for every 10 plants offered such an incentive, the incentive would be decisive in about three out of 10 location or expansion decisions. The incentives given to the other seven plants would not generate economic development, but would impose an extra cost on the local government. Bartik also notes that benefits from economic development should be netted against the value of forgone non-work time (reservation wage) for local residents who are hired for jobs, the costs of the increased demand for public services due to expanding employment and population, and environmental costs. Economic growth can generate increased demand for police, fire, and sanitation services. In-migration of households results in more demand for public schools and public infrastructure, such as roads.

The literature related to the cost-effectiveness of business tax incentives is far from conclusive. Oakland and Testa (2000), in a sample of Midwest states estimated the ratio of business taxes to tax-financed services rendered to business at an average of 2.4, with a minimum value of 1.9. Zodrow (2003) suggests that the "proliferation of state and local tax incentives can be interpreted as reflecting the recognition by state and local policymakers that the current tax burden on many businesses in their jurisdiction exceeds the value of the public services they receive, and

that such incentives can be used to reduce business taxation to a level consistent with benefit taxation." Zodrow also refers to Courant (1994) and argues the use of general business taxes applied to all capital, supplemented by tax incentives to reduce this burden to approximate benefit tax levels for mobile capital, could be a relatively efficient tax strategy for a state or local government. However, Zodrow does not address other basic design issues in state taxation such as equity, stability, and administrative and compliance costs.

Economically Distressed Areas

A considerable amount of study has been devoted to analyzing the effect of targeting incentives to specific areas. Bartik (1991) argues that economic development policy is more likely to be cost-effective and efficient when pursued in economically-depressed areas, generally measured by the unemployment rate. The economic theory is that there is a public benefit to the state in excess of the wage paid to a worker when a job is created in a high-unemployment area, and/or when a new job puts existing, but underutilized public infrastructure to use. Bartik argues that economic development programs are more likely to pass a cost-benefit test if: (a) the local unemployment rate is high, so that new jobs are needed by local residents; (b) the jobs are high-paying relative to the skills that are required; and (c) most of the jobs go to local residents. One major reason is that the reservation wage, the lowest wage at which a person is willing to work, will be lower in economically depressed areas. As a result, the increase in benefits that a job provides is greater in these areas than in more well-off areas. This is particularly the case when the wages paid to local workers are relatively high. However, in-migration of job seekers could offset the benefits to local residents if they fill most of the newly-created jobs. Bartik argues that this is unlikely because movement between labor markets is not instantaneous. As new jobs are created, local residents will be hired and, over time, these workers will acquire greater job skills and self-confidence, which increase their long-run employability and wages. According to Bartik, short-run increases in public service costs will be offset by the increase in employment and population if there is excess capacity in the local infrastructure. Also, the job growth in the area is likely to be progressive, because lower income groups are more likely to be unemployed or employed in lower paying jobs.

An issue that is related to targeting is the accessibility of jobs to residents of distressed areas. A theory of why there are economically-declining areas with high levels on unemployment is based on the spatial mismatch hypothesis. Spatial mismatch occurs when available jobs in a region are geographically separated from unemployed and underemployed individuals. In the U. S., spatial mismatch is viewed as primarily a problem in older urban areas and inner cities. Although, it could be argued, that certain economically depressed rural areas could have similar economic conditions. Public transportation systems that are inefficient in providing reverse commuting and restricted housing markets are thought to be contributing factors. Spatial mismatch provides support for targeting economic development incentives to these areas. However, skills mismatch between inner city residents and available jobs and the lack of economically suitable business locations could be more significant factors in inner city unemployment. As a result, job training, access to exurban housing markets, and transportation subsidies might be a more appropriate policy solution.

Enterprise Zones

Enterprise zones are viewed as an economic development program that provides for spatial targeting of economic development incentives. Fisher and Peters argue that the zone concept may be an appropriate economic development strategy because the spatial mismatch theory explains a fair amount of underemployment. Creating jobs locally is a more viable strategy than expanding journey-to-work mobility or access to housing markets.

Geographically targeted government policy aimed at poor and economically-declining areas has been used since the New Deal. After World War II, the federal government implemented a number of programs that provided federal funding to distressed areas including urban renewal, the Community Development Block Grant (CDBG) program, and programs administered by the federal Economic Development Administration (EDA). Often state matching funds were required to access the federal monies and many states developed similar type programs.

Enterprise zones differ from these programs in concept. The idea of enterprise zones is usually attributed to a few British academics, particularly Peter Hall, who were impressed with local entrepreneurship in some East Asian economies. The specific term was coined by Sir Jeffery Howe in 1978, and the zones were viewed as a means of reducing taxes and government regulation in poorer areas of British cities. By 1981 a dozen enterprise zones had been implemented in the United Kingdom.

Stuart Butler, an analyst at the Heritage Foundation, is credited with popularizing the idea of enterprise zones in the U.S. The first federal legislation was cosponsored by Congressmen Jack Kemp and Robert Garcia, who introduced a bill in 1981. State enterprise zones began to be created in the early 1980s in response to the federal legislation, in the hope this would increase the chances of being chosen for federal designation. However, the federal legislation was unsuccessful, and instead, states implemented their own programs. State enterprise zones have grown to vary widely in objectives, tools, sizes and number. In some cases, zones are basically geographically targeted versions of standard state and local economic development programs. In other cases, they are targeted to distressed areas as originally envisioned. Even in these cases, there can be uncertainty as to whether the zone should be an industrial or commercial area needing revitalization, or a low-income area with people needing jobs.

Enterprise Zones Literature

A fair amount of research has been undertaken in attempting to measure the economic impacts of enterprise zones, and it is as inconclusive as the research on the effects of other economic development incentives.

Ruben and Wilder (1989) used a shift-share analysis to decompose job growth in an Evansville, Indiana, zone that was created in 1983. They concluded that zone designation led to some job growth, although they noted this could not be proved conclusively with their method.

Rubin's (1991) evaluations of New Jersey's enterprise zones and Rubin, Brooks, and Buxbaum's (1992) study of Indiana zones indicated positive fiscal gains and positive benefit-cost ratios for the zones. Studies in which measures of investment and job growth were supplemented with questionnaires administered to zone firms (Wilder and Rubin 1996; Rubin and Richards 1992) determined that other factors were more important, but incentives make the difference at the margin.

Erickson and Friedman (1990) studied 357 enterprise zones in 17 states using econometric methods and found that the number of zone incentives was positively and significantly related to both investment and gross job growth in models that included policy-related variables. Leslie Papke has done some of the more prominent work in analyzing the economic impact of enterprise zones. In 1994, she analyzed the Indiana enterprise zone by measuring changes in levels of investment in machinery and equipment and inventories, and unemployment claims. Papke found that zone designation initially reduced the value of depreciable personal property by about 13%, but also reduced unemployment claims in the zone and surrounding community by 19%. The value of inventories was estimated to be 8% higher than it would have been without the EZ program. (One of the Indiana zone incentives was a 100% tax credit on property taxes on inventories.) In a subsequent study using three additional years of data and sites, Papke (2001) further examined the effects of zone designation on investment in inventory and depreciable personal property, and on the value of real estate. She again found that zone designation led to a decrease in the value of machinery and equipment and an increase in the value of inventories. Inventory investment may have replaced investment in machinery and equipment in zones, and there was a positive, but not a significant, increase in the value of real estate. Other studies with positive enterprise zone effects include Sridhar (1999) who found a 3.39% decrease in the unemployment rate in Ohio zones over a three- to five-year period. In a study of California enterprise zones, Moore (2003) found a positive increase in the number of finance, insurance, and real estate establishments. The number of manufacturing establishments was negative, but not significant.

In somewhat of a critique of the spatial mismatch theory, Dabny (1991), in a study of enterprise zones in eight states, argued that zone incentives were unlikely to offset the significant locational disadvantages of inner-city enterprise zones. Dabny noted, that on most locational factors such as costs of transporting materials, commuting costs, access to airports, infrastructure, and building functionality, enterprise zones were not competitive with other potential business locations. Using an analysis of variance, he determined that there was no significant difference in the rate of growth in zones compared to the rest of the city. Dabny also found that the impact of incentives was marginal, except in cases where the value was large relative to the amount of investment. As a result, small businesses were more likely to be attracted to enterprise zones.

Boarnet and Bogart (1996) used methods similar to Papke's to study the New Jersey enterprise zone program and found no evidence that the zones had a positive effect on local employment, employment in various industries, or on property values. The authors did note that the Indiana and New Jersey programs were very different. Greenbaum (1998) examined the impact of enterprise zones on both businesses and the housing market in six major cities. He found that, while

enterprise zones may generate new businesses, these gains tend to be offset by shrinking businesses in the zones. This caused the zones to have no impact on overall job growth, while having some impact on employment growth in new businesses. In an evaluation of the effect of zones on employment in enterprise zones in California, Kentucky, New York, Pennsylvania, and Virginia, Bondino and Engberg (2000) determined that neither the monetary value of zone incentives, nor the specific features of zone programs had a significant effect on local employment. The authors note that enterprise zone programs might be more successful if the number of such zones is restricted. Greenbaum and Engberg (2000) analyzed the impact of enterprise zones on housing markets in six different states and concluded that the zones had little positive effect on the housing market, income or employment.

One of the more comprehensive studies of the enterprise zone concept was conducted by Peter Fisher and Alan Peters (2002). The authors used the hypothetical firm methodology to examine enterprise zones in the largest states in terms of manufacturing employment. They examined various effects of the incentive packages available in a sample of 75 zones in 13 states, during the period of 1990 through 1994, and the changes in manufacturing establishments within the zones from 1989 through 1995. They also developed a more spatially focused analysis of 104 enterprise zone and non-enterprise zone communities in Ohio. From this study, the authors determined the following:

a. Between 1990 and 1998, incentive competition was part of a broader and continuing trend by state and local governments to reduce basic taxes on corporations and enact or expand targeted and general incentives for new business investment. In the 75 city sample, between 1990 and 1994, the average general incentive package increased 72%, while the average zone incentive package increased 21%. As noted in a previous section, the incentive packages were equivalent to a 1.6% to 7.1% reduction in wages, which the authors argue could be offset by a relatively small wage premium. Many states with long-standing enterprise zone programs increased the number of zones allowed. The authors note that this trend weakens the targeting effect of zone programs, as a larger and larger portion of the state falls under the targeted program.

b. In a majority of the states, state and local governments were likely to lose revenues from incentive programs offered in zones. In many cases, the incentives subsidized investment that would have occurred anyway because it was generated by other factors. The tax revenues lost on non-induced investments are likely to be greater than revenue gains from investment that was caused by the incentives. However, these calculations did not account for multiplier effects from the induced investment and employment, and related public service costs.

c. Fisher and Peters computed the rate of establishment and movement into the zones in response to zone incentives for both the national and Ohio samples. They found that enterprise zone incentives had no discernable positive effect on new economic activity. Because many of the zones are in older, distressed, inner-city neighborhoods with a number of barriers to growth, such as poor infrastructure and unskilled workers, it is unlikely that tax incentives alone could totally counteract these negative factors. In addition, enterprise zone incentives are too small to affect firm behavior,

and can be more than offset by factors such as wage differentials. However, the authors do acknowledge that very generous incentives could attract investment, but at substantial cost. They also indicate that their analysis does not prove that enterprise zones do not generate growth, but the results also do not support the idea that they do.

d. Suggested improvements in enterprise zones are: (1) target distressed areas; (2) limit the number and size; (3) provide factor-neutral incentives, such as exempting a certain percentage of taxable income; and (4) create incentives for businesses in any location to hire zone residents and make employment incentives more generous.

Small Business

Definition of Small Business

The term "small business" has certain connotations to the average person. Small businesses are often viewed as family-owned with a handful of employees, much like the Bailey Building and Loan in Bedford Falls. However, in the real world there is no common definition of small business. The federal Small Business Administration (SBA) has established a size standard for most industries in the economy. The most common are as follows: (a) 500 employees or less for most manufacturing and mining industries; (b) 100 employees or less for all wholesale trade industries; (c) \$6 million or less in annual receipts for most retail and service industries; (d) \$28.5 million or less in annual receipts for most general and heavy construction industries; (e) \$12 million or less in annual receipts for special trade contractors; and (f) \$750,000 or less in annual receipts for most agricultural industries. About 25% of industries have size standards different than these levels. They vary from annual receipts of \$750,000 to \$28.5 million, or from 100 to 1,500 for employees. The federal tax code has a wide variety of criteria for defining small business that include asset size, annual receipts, or employment. A journal article (Barney, Bjornson, and Wells, 2003) indicates that there are at least 24 different definitions of small business in the Internal Revenue Code (IRC).

The term "small business" in state law also has a wide variety of definitions. Small business is statutorily defined as one with less than 250 employees, for the purpose of targeting Wisconsin Development Fund (WDF) awards. However, in practice, the Development Finance Board uses a definition of fewer than 100 employees, or annual receipts of less than \$10 million. WDF trade program grants are awarded to exporters with gross annual receipts of \$25 million or less. Business Employee Skills Training grants are limited to firms with 25 or fewer employees, and \$2.5 million or less in gross annual income. The state income tax exclusion for the sale or exchange of small business stock defines a small business as one with 500 employees or less.

The Organization for Economic Cooperation and Development (OECD) generally uses 100 employees or less as a definition of small business in international development projects. Finally, in a Government Accounting Office (GAO) survey of state employee training programs found that most states targeted programs to firms with 100 employees or less.

The table below shows aggregate employment by firm size for Wisconsin.

TABLE 2

**Number of Firms, Establishments, and Aggregate
Employment by Number of Employees
2002**

<u>Number of Employees</u>	<u>Firms</u>	<u>Establishments</u>	<u>Employment</u>	<u>Annual Payroll</u>
0	14,086	14,086	0	\$507,932
1-4	49,928	49,969	106,115	2,626,632
5-9	20,779	21,001	136,849	3,426,720
10-19	14,002	14,751	187,292	4,952,468
Less than 20	98,777	99,809	430,256	11,513,752
20-99	12,253	16,230	462,718	13,003,605
100-499	2,611	7,440	373,680	11,279,275
Less than 500	113,641	123,479	1,266,582	35,796,632
More than 500	2,339	18,607	1,089,234	39,516,210
Total	115,980	142,086	2,355,816	75,312,842

Source: U.S. Bureau of Census, County Business Patterns.

Support for Small Business Assistance

Historically, the federal and state governments have targeted certain tax provisions and financial assistance to small businesses. Proponents of these policies argue that small businesses generate a substantial number of new jobs and economic growth, are a source of technological innovations, cause economic renewal and structural change, offer business ownership opportunities to women and minorities, and face barriers in capital markets. However, while most people acknowledge the significance of small business, critics of targeted assistance argue that there is not a sound economic rationale for these policies.

Data compiled by the federal Small Business Administration (SBA) for 2003 indicate that a majority of employers are small businesses (independent enterprises with fewer than 500 employees). These businesses account for more than 50% of employment and over 44% of the payroll in the private sector. According to SBA, during the 1990's small firms generated between 60% and 80% of net new jobs, and 50% of non-farm private gross domestic product. Small

businesses employed 40% of the scientists, engineers, and computer specialists working in the private sector. Small firms that file claims for patents produce 13 times more patents per employee than larger firms.

The view that small firms were an engine for job creation and economic growth was elevated to conventional wisdom by David Birch, who conducted a number of studies (1979, 1981, 1987) that indicated that most new jobs were created by small business. In his first analysis, Birch used government labor statistics and determined that 80% of the jobs created in the U. S. economy between 1969 and 1979 were in firms employing less than 100 workers. He subsequently used information from Dunn and Bradstreet and created a new database that measured a firm's location and employment over an eight-year period and computed similar results. For example, Birch (1987) found that, between 1980 and 1985, firms employing fewer than 20 workers generated 88.1% of net job growth, while new business start-ups generated nearly twice as many jobs as expansion of existing firms.

Other studies include Miller (1990) who found that, between 1980 and 1986, net employment growth in existing small rural firms was faster than in large firms. Karlsson (1993) found that new firm births and small enterprise expansion were the major sources of job creation that played a significant positive role in regional economic change. In a study to determine the impact of small and large businesses on county economic performance in Georgia, Winders (1997) found that small business had a strongly positive impact on total county employment growth. Winders also determined that small independent firms tend to purchase inputs and retain profits locally, while large companies did not. Her finding supports the argument that small businesses may be the only types of businesses that serve certain rural and inner city areas. From this view, small businesses play an important role in community development by generating and attracting investment in rural or economically distressed areas. Picot, Balwin, and Dupuy (1994) studied the impact of small firms on job growth in Canada and concluded that small firms in that country created the majority of net new jobs. The SBA has used its small business database to produce reports that indicate that small businesses are significant job creators. For example, the SBA found that national job creation capacity between 1991 and 1995 was inversely related to the size of the business. Finally, Kirchoff argues that no research, except when static methodology is applied, has shown that large firms create a disproportionate share of net new jobs in the U. S. or Canada. Moreover, cohort analysis (classification of firms and measuring firm growth by classification) demonstrates that new small businesses do create a disproportionate share of net new jobs (Kirchoff and Phillips 1989; Jackson 1995).

Small business is promoted as a source of innovation. Acs and Audretsh (1987) found that the innovation rate per 1,000 employees on average is higher in smaller firms (less than 500 employees). Across various industries the data indicated that smaller firms had higher innovation rates in high technology, skill-intensive industries (computers). Larger firms had the innovative edge in less technological but capital intensive industries (chemicals, industrial machinery). Almeida and Kogut (1997) examined the semiconductor industry using patent data to identify the patterns of innovation in large and small firms. They found that new firms produced innovations in

less crowded fields, while larger firms appear to produce innovations in more established fields. These studies would indicate that small businesses are able to generate innovation, while undertaking relatively low levels of research and development. One theory is that small firms are able to exploit knowledge created by R&D activities in universities and large corporations (Link and Rees 1990; Acs, Audretsh, and Feldman, 1992,1994). Biggs (2004) argues that small firms may be better able to exploit university and corporate associations. There seem to be some diseconomies of scale in the production of innovations, due to the bureaucratic nature of larger firms, which would inhibit both innovative activity and the speed at which new innovations move through the corporate system. However, the contribution of small business to growth varies by industry. In certain industries small start-up firms are better able, than larger firms, to identify potentially useful applications for new technologies and in implementing such applications

New firms in an industry can develop and promote new products and services, generate more competition, and play a role in reshaping the growth of a sector. One view is that new businesses are a vital and indispensable source of economic growth. This view is a reflection of Joseph Schumpeter's (1975) theory of "creative destruction." Schumpeter indicated that economic growth occurs because entrepreneurs create new, small businesses that use innovations to enter existing markets. Entry and the success of these firms creates new demand that increases overall economic activity generating income at the same time, these entrepreneurial businesses take market share away from existing large firms in the industry and transform market structure. The shift in market shares transfers wealth from the large established firms to the new, small firms. Consequently, wealth is both created and redistributed. Carlsson (1996) argues that the economy would stagnate without the diversity and volatility caused by start-up businesses.

Supporters of assistance for small business argue that small business ownership gives women and minorities better opportunity to fully participate in the economy. Such businesses can provide social benefits to the community. There is evidence (Brush and Hisrich) that women owners encourage more openness in communication and decision making, and are more likely than male-owned businesses to hire a diverse workforce, implement child-care programs, and pay full benefits to employees. Also, minority ownership of small businesses helps build close social networks that provide job and skills training and create informal capital markets (Butler and Greene, 1999)

Another argument made to support financial assistance to small business is that capital markets are not always efficient for small business owners. Entrepreneurs lack information about the availability and cost of various types of financing. Moreover, in making financing decisions, banks and lending institutions do not consider the potential social benefits of increased employment and innovation from a successful business venture.

In 2003, the SBA published the third national survey of small business finances that included information from 3,500 nationally representative firms with fewer than 500 employees. The survey found that over 80% of small businesses surveyed (less than 500 employees) used some kind of credit for financing and had outstanding debt. Fifty-five percent of the firms had used some type of traditional loan, while 71% had used nontraditional sources, such as credit cards or owner's loans.

Among the different type of credit used, 46% of small firms used personal credit cards, 34% used business credit cards, 28% used credit lines, and 21% used vehicle loans. The survey found that the smallest businesses had much less access to bank financing than larger firms. Of firms with 0 to 4 employees, only 17% to 31% borrowed from commercial banks, compared to 53% to 77% for larger small businesses (20 to 500 employees). The percentage of firms using credit increased with firm size (see Table 3). The report concludes that the positive relationship between firm size and the percentage of use for the most commonly used credit types and credit sources reflect the availability of credit supplied to the larger firms. The flat and inverse relationship between firm size and such non-traditional kinds of credit as owner's credit cards reflects the need of very small firms to use those alternative sources because of the lack of availability of other kinds of financing, which are usually cheaper.

TABLE 3

**Percentage of all Small Firms Using Credit,
by Sources of Credit, 1998**

	<u>Any Firm</u>	<u>Number of Employees</u>					
		<u>0</u>	<u>1-4</u>	<u>5-9</u>	<u>10-19</u>	<u>20-99</u>	<u>100-499</u>
Credit	82.5%	70.2%	80.3%	89.6%	94.1%	95.0%	99.3%
Any Traditional Loan	55.0	32.8	49.0	70.1	76.0	84.2	92.1
Line of Credit	27.7	12.8	21.0	34.8	49.2	59.9	74.9
Mortgage	13.2	6.5	12.5	15.5	19.5	21.1	18.8
Vehicle	20.5	12.3	17.9	25.1	31.3	32.9	29.8
Equipment	9.9	3.9	7.8	14.6	12.9	22.1	25.0
Lease	10.6	3.2	7.5	14.6	22.3	23.3	28.3
Other	9.8	5.8	8.9	9.3	15.0	19.3	22.7
Nontraditional Loan	70.7	59.4	68.2	75.7	84.3	85.6	84.5
Owner Loan	14.2	0.2	12.0	19.3	29.1	32.9	27.6
Personal Credit Card	46.0	48.2	46.7	43.2	52.2	38.8	23.7
Business Credit Card	34.1	17.4	29.3	44.1	51.8	57.9	62.5

Source: U.S. Small Business Administration, Financing Patterns of Small Firms, 1998.

Among credit suppliers, banks were most important, accounting for 56% of the outstanding debt of small businesses (Table 4). Lines of credit and mortgage loans were the most important types of credit used by small business, representing 61% of total borrowing. In reviewing debt-equity structures, the report found that small firms with more assets seemed to have more equity than small firms with fewer assets. Most small businesses financed their asset accumulation through equity financing. However, a U-shaped relationship applied to the use of equity, with the equity share of total assets declining as firm size increased from the smallest to mid-sized small businesses. The share then increased significantly for the largest firms (100 or more employees).

The report concludes that the heavy reliance on high-cost personal credit cards and owner's loans by very small firms seems to confirm anecdotal complaints regarding the shortage of credit and inefficient operation of credit markets for these firms.

TABLE 4

**Percentage of all Small Firms Using Credit,
by Suppliers of Credit, 1998**

Sample Number	<u>Any Firm</u>	<u>Number of Employees</u>					
		<u>0</u>	<u>1-4</u>	<u>5-9</u>	<u>10-19</u>	<u>20-99</u>	<u>100-499</u>
	3,561	503	1,337	524	285	649	263
Credit	82.5%	70.2%	80.3%	89.6%	94.1%	95.0%	99.6%
Traditional Loan	55.0	32.8	49.0	70.1	76.0	84.2	92.1
Depository							
Institution	42.0	21.6	35.5	55.9	62.5	73.5	77.9
Credit Union	2.3	3.0	2.2	2.3	3.3	1.0	0.1
Thrift	3.3	2.9	3.3	2.8	3.9	5.0	3.4
Commercial Bank	38.2	17.3	31.3	53.2	59.0	70.2	77.2
Nondepository							
Institution	19.8	10.8	16.7	23.2	33.2	34.9	45.4
Finance Company	13.3	7.1	11.5	15.8	19.7	24.3	27.5
Brokerage	0.4	0.5	0.3	0.3	0.7	0.8	2.2
Leasing	6.8	2.5	4.8	9.6	14.5	12.4	22.7
Other Nondepository	1.5	1.5	1.5	1.5	1.2	1.9	1.8
Nonfinancial							
Institution	9.6	6.7	8.7	9.5	13.8	17.7	12.4
Family and Friends	6.0	3.6	5.7	5.6	9.4	10.5	6.5
Other Businesses	3.0	2.6	2.4	3.4	3.4	5.6	4.3
Government	1.0	0.5	0.7	0.9	1.6	3.2	2.6
Other	0.2	0.0	0.3	0.1	0.1	0.2	0.9
Unknown	0.2	0.3	0.2	0.4	0.0	0.0	0.0
Any Nontraditional Credit	70.7	59.4	68.2	75.7	84.3	85.6	84.5
Owner Loans	14.2	0.2	12.0	19.3	29.1	32.9	27.6
Personal Credit Loans	46.0	48.2	46.7	43.2	52.2	38.8	23.7
Business Credit	34.1	17.4	29.3	44.1	51.8	57.9	62.5

Source: U.S. Small Business Administration, Financing Patterns of Small Firms, 1998.

Criticism Of Small Business Assistance

Critics of government assistance to small business argue that such subsidies are economically inefficient. From this view, subsidies would only be justified to offset market failures, such as a lack of access to capital. However, the large number of new business formations each year would indicate that start-up businesses do have access to capital. Further, if it is argued that small businesses are primarily responsible for new job creation, the promotion of innovation, and stimulation of dynamism and wealth redistribution in the economy, then public support might not be necessary. Moreover, the favorable treatment of small business could increase the rate of return on investments in small firms compared to other businesses. In addition, the relative costs of small business inputs of capital and labor would be reduced, possibly favoring one factor over another. As a result, subsidizing the returns on investments in small companies can lead to the inefficient allocation of resources in the economy.

Almost from the time he first published his results, Birch's methods and conclusions concerning small business job creation were questioned. The first prominent report refuting Birch's study, was by Armington and Odle (1982) who used the same government statistics that Birch used in his first analysis and found that only 35.8% of new jobs were created by small businesses. One item they noted was that he had not controlled for the fact that many new and small firms are owned by larger firms. Dunne, Roberts, and Samuelson (1987) noted that many of the jobs created in Birch's study were also destroyed due to high failure rates among small businesses, which made the share of jobs created by new firms smaller. Brown, Hamilton and Medoff (1990) based their critique on the notions that most new jobs in the small business sector come from new firm births, the static share of employment in small business increased modestly over the past fifteen years, a major source of job creation is a small percentage of small firms that experienced rapid growth, and the jobs created by rapid growth cannot be credited to the small business sector because they eventually become large firms and contribute their employment in the large business sector. The authors also raised a common issue among critics by emphasizing that large businesses were better employers because they paid approximately 35% better wages, offer better benefits, such as pension plans, and provide better working conditions.

Davis, Haltiwanger, and Schuh analyzed job generation between 1972 and 1988 and found no relationship between net job growth rates and either firm or plant size. Their findings included that small employers create new jobs at a much higher rate than larger firms, small employers destroy jobs at a higher rate than larger firms, and there is not a strong relationship between employer size and net job creation. The authors argue that the focus should be on net job creation. Biggs (1998) studied U.S. manufacturing data for 1973 through 1988 and found that gross rates of job creation and destruction were higher in small firms (less than 500 employees) categories. However, net job creation was highest in large firms. Biggs concluded that there was no systematic relationship between the rates of net job creation and firm size. Biggs also raises the quality of jobs issue and argues that there is a large body of empirical evidence showing that large firms offer much higher wages than small firms, even when differences in employee education and the type of business is considered. Empirical studies indicate that large firms provide more stable employment,

higher wages, and more non-wage benefits than small business (Rosenweig 1988; Brown, Hamilton and Medoff 1990).

Even if small businesses create more jobs over time than large businesses, it is argued that this does not justify small business subsidies. The economy generates jobs through overall growth, decline and restructuring, regardless of the size distribution of businesses. From this perspective, national employment levels are much more dependent on factors other than business subsidies. Federal monetary and fiscal policy, overall personal consumption spending, and business investment are all more significant determinants of the level of employment.

Another argument against targeted assistance to small business is made on the basis of equity. The state and federal individual income tax systems are based on the concept of progressivity or ability-to-pay where, in general, taxpayers with higher taxable incomes pay higher taxes than those with lower incomes. There is a view that reducing the tax burden on small business can weaken the progressivity of the tax system by lowering the taxes of small business owners. Some studies have shown that small business owners wealth and income tend to be higher than the average for U. S. households. Haynes (1998) found that the mean income of households with small business owners was \$101,600 compared to \$44,000 for other households, while the mean wealth of households of small business owners was \$832,500 compared to \$171,900 for other households.

Finally, critics of small business subsidies would note that both small and large firms are responsible for different types of innovations. The National Science Foundation has developed data that indicate that larger firms perform most business R&D activities. Between 1992 and 1997 companies with less than 500 employees accounted for 14% of total R&D spending, while companies with 10,000 or more employees were responsible for 59% of such spending. It is argued that no firm size has been proven ideal for all types of innovation and generating new technologies.

Public Services

Public Services and Economic Growth

In his book that analyzes the factors that may influence economic development Bartik (1991) includes a section about public services. He indicates public services could be expected to affect state and local business growth for at least four reasons:

a. The public service produces an unpriced input to production. Examples of unpriced public service inputs include highways, police and fire services, and research and development information from higher education institutions. Such public services can increase productivity and reduce costs.

b. The public service to the business is priced, however, the price is not known and greater quantities of the public service are associated with lower prices for that service. Examples of priced public service inputs include water and sewer services, energy utility services, and air

transportation services. Although these services are priced, there are other costs, such as the time lags in obtaining services, that are implicit. Greater spending on these services could lower costs. For example improving airport facilities to provide more flights for business travelers could reduce business costs.

c. The public service is not directly used by business, but the public service lowers the price of an input used by business. Education and public assistance programs are not used by business, but they may affect business profitability by affecting the skill-adjusted real wage paid to employees. Additional supplies of skilled workers produced by educational institutions may cause the real wages of skilled workers to be lower. Also, better educational services may attract workers to a local economy and also lower local real wages. Bartik notes that the main reason this could happen would be the businesses lack of information about actual skill-adjusted real wages.

d. Business growth causes production of the public service to change. Growth can generate additional revenues for public services, and at the same time lower welfare costs. On the other hand, public capital stock cannot be adjusted rapidly, and growth could place added stress on public service systems. In this case, it is difficult to measure the actual effects of public services on growth.

Public Services Literature

Bartick (1991) surveyed 30 studies and found that 60% of the studies identified at least one positive and statistically significant effect of state and local public services on local business growth. Public expenditures for education and infrastructure were most consistently positively correlated with growth.

Ronald Fisher (1997) compiled a survey of 43 studies that analyzed the effects of public safety, highway, and transportation services on economic development, Fisher wrote that "accurate estimates of the possible negative effects of taxes require similar estimates of the possible benefits from the public services financed by the taxes." Fisher found that transportation and highway facilities showed the most evidence of a relationship between services and economic growth, followed by public safety and then education. Ten of 15 studies for highway services showed a positive relationship, while eight were positive and significant. Comparable figures were five of nine studies positive (four significant) for public safety, and 12 of 19 positive (six significant) for education.

Garcia-Mila and McGuire (1992) found that spending on education and median years of schooling both had positive effects on gross state product. The authors also found that highway services contributed to economic growth. Dalenberg and Partridge (1995) found that increases in per pupil expenditures had a positive effect on employment, and Card and Kruger (1992) determined that the quality of schooling improves earnings. In a study of elementary schools in six Louisiana parishes, Norris (2003) identified a strong positive impact of public school quality on housing values, and subsequent economic growth. Studies have also shown a complementary

relationship between public capital infrastructure and economic growth. Public investment in infrastructure increases the productivity of private investment, increasing output and income (Aschauer 1989; Munnell 1990). However, subsequent studies have shown a diminishing return from investments in public infrastructure (Fox and Murray 1993)

Some research has indicated that when taxes are increased to finance certain services, state and local growth could be stimulated. Helms (1985) found that increases in state and local taxes to increase public spending on health, highways, schools, or higher education resulted in an increase in state personal income. Munnell (1990) found that state and local tax increases used to finance improvements in highways, sewers and other infrastructure increased the rate of private employment. Bartik (1996) determined that increases in higher education and health spending financed by property tax increases would increase state long-run manufacturing output.

Prepared by: Ron Shanovich

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