2009

What Should EDA Fund? Developing a Model for Pre-Assessment of Economic Development Investments

Brad R. Watts
W.E. Upjohn Institute

George A. Erickcek
W.E. Upjohn Institute, erickcek@upjohn.org

Jacob Duritsky
TeamNEO

Kevin O'Brien
Cleveland State University

Claudette Robey
Cleveland State University

See next page for additional authors

Upjohn Institute Working Paper No. 09-155

Published Version
Economic Development Quarterly 25(1) (2011): 65-78

Authors
Brad R. Watts, George A. Erickcek, Jacob Duritsky, Kevin O'Brien, Claudette Robey, and Jim Robey

What Should EDA Fund?
Developing a Model for Pre-Assessment of Economic Development Investments

Upjohn Institute Staff Working Paper 09-155

Brad R. Watts, Regional Analyst
W.E. Upjohn Institute for Employment Research

George A. Erickcek, Senior Regional Analyst
W.E. Upjohn Institute for Employment Research

Jacob Duritsky, Research Manager
TeamNEO

Kevin O'Brien, Director
Center for Public Management
Cleveland State University

Claudette Robey, Assistant Director
Center for Public Management
Cleveland State University

Jim Robey, Vice President, Research
TeamNEO

July 2009

Abstract

This paper describes the completion of a "comprehensive study of regionalism" that was conducted by a joint team of economists and economic development specialists for the Economic Development Administration (EDA). The project consisted of two main activities: an examination of the factors associated with economic development success and the creation of a practical interactive tool for EDA project assessment and comparison. Findings from surveys, interviews, and project case studies are discussed in terms of their support for a positive relationship between successful economic development efforts and factors such as leadership and private investment. Also, the authors discuss the creation of a quantitative assessment model utilizing well-known approaches such as economic impact multipliers and cluster theory. The primary contribution of this work to the existing body of EDA-focused research and evaluation literature is introducing a means of using standardized scores, also known as z-scores, to compare and assess economic development projects across both industries and regions.

JEL Classification: O21
Keywords: regional economic development, economic impact, assessment model, EDA, z-score

What should EDA fund? Developing a model for pre-assessment of economic development investments

Brad R. Watts, Regional Analyst
W.E. Upjohn Institute for Employment Research
300 S. Westnedge Avenue
Kalamazoo, MI 49007
Phone: 269-343-5541 Fax: 269-342-0672

George A. Erickcek, Senior Regional Analyst
W.E. Upjohn Institute for Employment Research
300 S. Westnedge Avenue
Kalamazoo, MI 49007
Phone: 269-343-5541 Fax: 269-342-0672

Jacob Duritsky, Research Manager
TeamNEO
737 Bolivar Road, Suite 2000
Cleveland, OH 44115
Phone: 216-363-5424 Fax: 216-363-5401

Kevin O'Brien, Director
Center for Public Management
Cleveland State University – Maxine Goodman Levin College of Urban Affairs
2121 Euclid Avenue, UR 120
Cleveland, OH 44115
Phone: 216-687-2188 Fax: 216-687-9291

Claudette Robey, Assistant Director
Center for Public Management
Cleveland State University – Maxine Goodman Levin College of Urban Affairs
2121 Euclid Avenue, UR 120
Cleveland, OH 44115
Phone: 216-687-2188 Fax: 216-687-9291

Jim Robey, Vice President, Research
TeamNEO
737 Bolivar Road, Suite 2000
Cleveland, OH 44115
Phone: 216-363-5420 Fax: 216-363-5401

Acknowledgement: The authors would like to thank the U.S. Department of Commerce, Economic Development Administration for supporting this project.

Each year, the Economic Development Administration (EDA), a federal agency within the U.S. Department of Commerce, allocates millions of dollars for projects aimed at spurring development in economically disadvantaged regions of the country. Although EDA currently operates seven programs[i] the agency's primary means of economic development activity is through its Public Works and Economic Development program—one-time matching-fund investments that are typically used to support basic infrastructure development deemed necessary to support a business retention or attraction effort. Since its beginning in 1965, more than half of EDA's economic development resources have gone toward public works projects (Lake, Leichenko, & Glasmeier, 2004). A typical project could entail improving water and sewer service to support the expansion of a chemical manufacturer, development of road and utility services for a new industrial park, or subsidizing the extension of a rail spur to a new company. In some cases, these funds can also be used to support specific training efforts or to develop business incubator sites as well.

Federal monies from EDA only support a portion of the full cost of the economic development project, typically no more than 50 percent. Other funds must be leveraged to cover not only the remainder of the infrastructure's construction cost, but also any other expenses associated with a larger economic development approach, such as tax incentives or financing, since rules mostly limit federal funds to specific construction activities. Although a few situations do qualify for a proportionally larger investment from EDA—for example, areas with extremely low income or Native American Indian reservations may qualify for 100 percent financing—in general the public works investment program is designed to contribute to economic development projects that the

community is interested in supporting through their own investment. As such, EDA's public works investments could be described as a final-mile or last-dollar approach that attempts to spur development that might not otherwise occur by providing gap funding. These leveraging requirements help ensure that there is reasonable interest in the project and a willingness to invest by local and state agencies and private organizations, as opposed to projects that might be born purely in the quest for federal funding.

Like most economic development efforts, the approach taken by EDA in dispersing public works investment funds is based on a combination of economics-based theory and politically driven objectives. Decisions to award funds to regional projects occur based on the fulfillment of a variety of criteria established by legislation (EDA, 2004), as is expected for publicly funded programs. These guidelines serve as a form of project preassessment conducted by EDA prior to awarding funds. For example, to qualify for EDA funds, first, regions must be classified as economically distressed based on a per capita income level no more than 80 percent of the national average or an unemployment rate that is one percentage point or more above the U.S. rate over a two-year period. Second, regions must also engage in a regional planning process and develop a Comprehensive Economic Development Strategy (CEDS) for the region before undertaking program activities. These eligibility criteria keep EDA's efforts directed toward regions that demonstrate need, as well as a strategic understanding of the local economy and its development prospects.

During the application and planning stages, EDA field reps work directly with regions to help ensure that the project stays on track and adheres to EDA's investment policy guidelines.[ii] Otherwise, assessment of performance during or after completion of a

project varies, but is generally focused on meeting promised activity guidelines and adherence to accounting and financial standards set by the federal government (EDA, 2007). Assessment of the economic impact of projects is generally not considered in a systematic way, which leaves an opening for additional work into understanding and evaluating investments.

Project Overview

In November 2006, a team of researchers from the W.E. Upjohn Institute for Employment Research, the Maxine Goodman Levin College of Urban Affairs at Cleveland State University, and TeamNEO (a regional economic development organization representing northeast Ohio) received a National Research Program Grant from EDA to develop an evaluation tool for preproject assessment and decision making. The grant's terms called for a tool designed to assess proposed public works investments using predictions of economic impacts.

Unlike typical evaluation projects, this one offered three major challenges. First, EDA was not interested in developing an approach for evaluating completed projects but instead wanted a tool that could provide a formative or predictive assessment of how a proposed project might fare before it was even selected. This meant the tool would need to be based on economic theory and EDA's operational values—not the results of direct empirical outcome measurements. Second, EDA was interested in an approach that would identify projects with the potential to provide employment opportunities for the region's unemployed and underemployed economically disadvantaged workers. Third, the audience identified by EDA for the final product—the evaluation tool—was not upper

management or research staff but field representatives and investment applicants. In addition to providing a comparison of potential economic impacts, the tool would also serve as a way to help EDA clients learn how to incorporate economic impacts into their own development planning and project selection processes. Developing such a tool presented a significant challenge since it required developing a model that is accessible and user-friendly, as well as consistent with region-based approach emphasized by EDA.

Currently, there are multiple products on the market designed to determine the economic impact of economic development efforts, as well as policies, taxes, or any other changes to the economy of a region. Popular examples include the Bureau of Economic Analysis' RIMS II multipliers and the Minnesota IMPLAN Group's input-output model, as well as more complex forecasting and analysis software packages from companies such as Regional Economic Models, Inc., and Regional Dynamics. In addition to being costly and often having a steep learning curve, these models alone are not appropriate for evaluating EDA's objectives. The aforementioned models only measure the overall economic impact of a project and do not examine the growth potential of the project (is it facing strong national and regional markets?) or the relative fit of the project to EDA goals, such as offering good wages as well as occupations that are within reach of the region's economically disadvantaged workforce.

Finally, the proper utilization of these economic impact models generally requires the skills of professional research analysts who have had extensive training in the use of such tools. Expanding the use of economic impact as an evaluative concept, therefore, requires simplifying the analysis process and creating a standardized framework of regions and impact factors.

Project Activities

To support EDA's efforts to develop an evaluation tool for assessing public works investment projects prior to funding approval, the project team relied heavily on existing economic development theory. Much work has already been done to develop an understanding of how economic changes generate regional impact and the interaction of firms in a regional context. This research formed the basis for development of a quantitative model that EDA can use to examine and compare the expected impact of project proposals in the context of their respective regions.

The team also conducted research into the factors associated with successful economic development investments as judged by "real world" economic development experts: EDA's regional office staff and field representatives. The research approach for this more qualitative section of the project consisted of a combination of surveys, interviews, and case studies of actual EDA public works investment recipient sites. Findings were used both to triangulate the factors of economic development success identified by theoretical research, as well as to guarantee the relevance of the evaluation tool to practitioners in the field. Although simple in nature, this aspect of the project was key to ensuring the construction of a model that fit the conceptual parameters already established in the minds of the end users. Additionally, qualitative inquiry into the nature of successful economic development projects allowed for the inclusion of "intangibles" into the model.

Theory and Economic Impact

One of the key assumptions required for developing a tool to assess the potential impact of an economic development project is that there should be evidence showing that

the approach being used can reasonably be expected to have a measurable and positive effect. Although debate continues regarding the general merit of current federal economic development efforts and how they might be reformed (for example, see the discussions of Drabenstott, 2008; Finkle, 2008; Markusen & Glasmeier, 2008; and Singerman, 2008), our efforts required accepting some general assumptions about the observed and theoretically predicted outcomes of EDA's efforts. First, we accept that EDA public works investments have a positive and measurable economic impact in the communities in which they occur. Second, we accept the set of values expressed in EDA's goals of focusing on development that targets disadvantaged areas and displaced workers.

Although neither point is a given, we believe there is sufficient evidence to support the reasonable adoption of these assumptions. In any case, the goal of our efforts was not to address these key issues of economic development theory, nor was it to undertake a new round of evaluations of EDA public works investment programs. Instead, the aim of our effort was to construct a model capable of providing information on the economic impact of a proposed project that is useful to EDA investment decision-making. Within the context of assumptions of positive outcomes and appropriate goals, it was our aim to create a model that would enhance the ability of EDA to fund projects that will have the highest possible regional economic impact and face a higher likelihood of attaining success in light of the agency's internal values.

Existing Evidence of Project Outcomes

Not surprisingly, the magnitude and longevity of EDA's economic development efforts has provided some inspiration for research and evaluation studies. However,

EDA's own lists of sponsored reports and publications (EDA, 2001 & 2009) reveal that studies examining the overall impact of EDA's public works programs are somewhat limited. Often prior research or evaluation efforts have focused on individual projects or specific aspects of EDA's development approach. Although individual project evaluations and research into specific aspects of development effectiveness are important, they are not necessarily sufficient to develop support for the efficacy of the overall economic development approach.

When the General Accounting Office examined the impact of federal economic development efforts, it was only able to identify nine studies that provided information on the overall impact of the agency or its major programs, such as its public works investments (U.S. General Accounting Office, 1996). Since then, there have been two major research initiatives examining the overall impact of public works investments. During the late 1990s a team of researchers from Rutgers University and Princeton (Burchell et al, 1997; Burchell, Robison, & Haughwout, 1998) looked at the multiplier effect of job outcomes in EDA project regions and evaluated the overall performance of the program approach. More recently, a team from the private consulting groups Grant Thornton and ASR Analytics has also released a study examining the impact and effectiveness of EDA's public works investments (Arena, Adams, Noyes, Rhody, & Noonan, 2008).

Unfortunately, however, independent and academic examination of EDA's programs has been limited over the past few years. Our search of peer-reviewed academic literature revealed only one significant published empirical work on EDA's

general impact since the GAO report, although the general concept of the effectiveness of these economic development efforts has often been discussed in a general way.[iii]

The two primary measures of concern when examining economic impact are jobs and income. In terms of employment impact, there is substantial support for the assumption of positive job growth occurring in communities as a result of EDA public works investments. Looking at the early years of EDA's existence as a federal agency, Barrows & Bromley (1975) found that public works investments generated positive employment impacts across the board, with larger impacts usually occurring in smaller rural communities—areas frequently targeted by EDA's development efforts.

Positive findings were also reported in later works by Kwass, Siegel, Reamer, and Roberts (1992), who found that EDA investments create numerous jobs "suitable for the long-term unemployed and workers from low-income families" (p. 171), and by Haughwout (1999), who identified a significant impact on employment in counties where public works projects occurred. Additionally, an evaluation of EDA construction and public works programs completed during 1993 found that all of the sampled projects generated or retained permanent private-sector jobs, as well as temporary construction employment opportunities (EDA National Performance Team and Rutgers, 1999). These findings support the general assertion that EDA public works investments can be expected to generate a positive employment impact for the area's economically disadvantaged workers—a key assumption for the development of the evaluation tool.

It should also be noted that a very recent report by Grant Thornton and ASR Analytics also found that EDA investments have a positive and statistically significant impact on employment in regions receiving investment dollars (Arena et al, 2008).

Although their findings had not yet been released until after the development of this assessment model for EDA was already complete, it adds to the empirical support for the connection between public works investment and job creation.

Of course, economic development success entails more than just creating jobs. Often there is also an interest in generating additional income, increasing local tax revenues, reemploying local workers, or attracting firms that are seen as stable or growth-oriented. However, in terms of success in these areas, the findings regarding public works investments are mixed. On the one hand, evaluations of EDA's public works investment program have found that the jobs created are both accessible to local residents and successful at diversifying the mix of industries and occupations in the community (Kwass et al, 1992; EDA National Performance Team and Rutgers, 1999). Such efforts can be expected to boost labor force participation and reduce unemployment, which is a benefit to local residents especially in nonurban counties (Partridge, Rickman, & Li, 2009).

However, total income growth may not experience the same kind of benefit. When Haughwout (1999) looked at county effects on both employment and income, no significant effect on income at the county-level was identified despite positive employment impacts. Other studies focusing exclusively on net income impacts reached similar conclusions. Martin and Graham (1980) found no evidence of impact when looking only at changes in total personal income following a public works investment; however, this was attributed primarily to the dominance of the industrial mix and the disadvantaged nature of regions eligible for economic development investments.

These findings suggest that public works investments are not powerful enough to overcome other factors such as worker education and skill levels or industry mix that ultimately determine the relative income prospects of a region. If these investments are expected to impact an area's income, it will be primarily through the employment wages. However, the complexity of the determinants of local wage rates, as well as the relatively small scale of most EDA public works investments compared to a regional economy makes it unlikely that their effect would be felt in a measure of the region's overall income. According to Bartik (1991), employment shocks from economic development activities do not have a discernable effect on overall wage rates in metropolitan areas over the long-run, although they may lift the wages of some individuals as they move to occupations with higher pay. This is particularly true among workers with lower skill levels. As such, EDA's programs could not reasonably be expected to have a measurable effect on the overall income level of a larger community; however, public works investments may still be effective at helping some of the disadvantaged target populations in project regions.

Identifying Impact Factors

Following the basic assumption that public works investments have a positive and measurable impact, the second stage in developing an evaluation tool was to identify how factors related to desired economic development project outcomes could be measured and compared. For this the team first called upon Porter's (1998) industrial cluster theory, which illustrates how strong industrial and service linkages enhance the economic environment of the region for the incoming or expanding business. To estimate the supply linkages that the region offers to the potential employer, we use economic

multipliers. This input-output analysis approach is well established in economics and as a tool for the evaluation of economic development projects and policies (Stevens & Lahr, 1988).

Multipliers are simply a way of measuring the total expected impact of a change in economic activity based on established industrial-supplier linkages within a region. Dominant, integrated industries will have a higher expected impact, so in other words an industry with an employment multiplier of 2.7 is more connected to the region than one that has a multiplier of only 1.4. As a measurement, the multiplier simply captures the relative ratio of employment or income effect that occurs elsewhere in the regional economy. So, in the case of an employment multiplier of 1.4, it indicates that for every new job in the industry, an additional 0.4 jobs would be generated elsewhere in the region.

Indeed, any activity involving industries with a greater supplier base in the area will generate a higher multiplier effect than industries that are not as integrated into the regional economy. For example, a chemical processing facility that locates in central New Jersey might be expected to produce a greater multiplier effect than if it were to locate in Fargo, simply because there are more likely to be linked companies located in the New Jersey area to supply base materials or services. Conversely, the hypothetical plant in North Dakota would probably have to rely on imported base materials shipped in from other parts of the world and would generate a smaller economic multiplier for the local region. Of course this approach measures only backward linkages, the potential supply chain. For industries that are moving into the region to become a supplier to an

existing company, this approach may underestimate the importance of the region's industrial structure.

Because one of EDA's goals is to leverage resources and increase employment, economic multiplier theory also provides a quantitative measure of the expected impact of a project, depending on the type of industry the project involves, as well as the unique structure of the regional economy. All other things being equal, an economic development project that generates high employment or income multipliers is superior to an economic development project that produces smaller economic multipliers, simply because the impact on the overall community will be larger.

Of course, not every factor selected for inclusion into the model represents a core measure of economic impact; factors were also selected keeping in mind the goals of EDA. Because EDA has goals of not only fostering overall economic development, but also of targeting their efforts toward struggling areas, disadvantaged workers, and innovative industries, factor variables that can provide measurement of these traits were also included into the model. The next section details all eight factors that were selected for inclusion in the final model tool for EDA.

Model Development

The team developed a simple approach to integrating the factors associated with successful EDA public works investment projects based on eight regional and industry factors. This quantitative economic model can be summarized by the following equation:

Project Score $= Z_c + Z_w + Z_o + Z_f + Z_p + Z_u + Z_e + Z_v$.

Each variable takes the form of a z-score. A z-score is based on the standard deviation of a variable and represents the relative difference between a specific value and the mean of all values of that factor. Because the variables selected for each component of the project assessment score are measured in different units and have different levels of variation, the use of z-scores to standardize measurements allows them to be added into an overall comprehensive score. It also offers the advantage of allowing direct comparison of individual component scores across geographic regions and industries.

The components of the score are as follows:

Z_c = The standardized regional employment multiplier for the project industry. An employment multiplier is the ratio of total number of jobs created in the region by a new economic development project divided by the number of jobs created only by the project itself. It is a measure of the project industry's economic connection to the region; therefore, an industry that has a concentrated supply base in the region will generate a larger employment multiplier. The data for this variable are taken from a custom set of multipliers provided by Regional Dynamics (2007).[iv]

Z_w = The standardized regional industry wage multiplier for the project industry. This is a measure of the potential of the industry to generate additional income and wealth for the region. The data for this variable are taken from a custom set of multipliers provided by Regional Dynamics (2007).

Z_o = The standardized share of less-skilled occupations in the project industry. This is a measure of the industry's capability to generate employment opportunities accessible to the region's workers who may face educational barriers. Data for this variable were calculated by the authors.[v]

Z_f = A standardized measure of the national forecast for growth for the project industry. The data for this variable are taken from a custom set of multipliers provided by Regional Dynamics (2007).

Z_p = A standardized measure of the regional forecast for growth for the project industry. This is a measure of the expected competitiveness of the region for that industry. The data for this variable are taken from a custom set of multipliers provided by Regional Dynamics (2007).

Z_u = A standardized measure of the project's county unemployment rate, which is a measure of the availability of employment opportunities. The data for this variable were taken from the Bureau of Labor Statistics (2006).

Z_e = The standardized employment rate for the region. This is an additional measure of economic need that monitors the level of labor force attachment of the county's residents. It also helps account for regions that may have a low unemployment rate as a result of limited workforce participation instead of a healthy job market. These data were calculated by the authors using employment and population data from the Bureau of Economic Analysis (2007) REIS data.

Z_v = A standardized measure of the percentage of the industry's workforce who are engineers and scientists (a measure of the innovation potential of the industry). Data for this variable were calculated by the authors.[vi]

Each measure is standardized based on a distribution of values across the 179 multi-county Bureau of Economic Analysis (BEA) economic areas (Johnson & Kort, 2004) that cover the entire nation. This approach allows the user to tailor a project evaluation score to the context of the region in which it is going to occur. By using mean-standardized scores, projects can be assessed against one another, both within and across regions—a more realistic scenario since EDA field reps may be responsible for working with project applicants in multiple regions or even across states. For example, the user can compare how two different projects would fare within the same region, how two different projects compare across regions, or even how one project could be expected to fare if it were done in one region instead of another.

The use of z-scores is not new; the simple calculation has been used in numerous other fields to facilitate a quantitative comparison of test scores and other values that are measured on differing scales. Examples of recent use of z-scores in other fields include standardizing measurements across age or gender groups (Hodgson et al., 2008) and creating a composite measure from the scores of different tests (Rossberg, Melle, Opjordsmoen, & Friis, 2008). However, the approach may be new to the field of economic development. In creating the model, the authors found no evidence of the use of z-scores for comparison or assessment purposes in economic development.[vii] Although simple in nature, the use of standardized scores for comparison purposes could

begin to address some of the issues practitioners have with current approaches to economic development impact analysis and evaluation.

Examples of Model Usage

One possible use of the model is to compare how the same project might produce a varying level of impact depending on where it is located. As an example, the case of an animal food processing and manufacturing facility (NAICS code 3111) employing 200 workers is imagined to be contemplating an expansion at two different sites in Iowa. The model was used to produce z-score results of this hypothetical economic development project for two randomly selected Iowa counties: Boone County and Benton County.[viii] As shown in Table 1, Benton County scores higher than Boone County on several measures. The z-scores for industrial fit and wage effect are higher in Benton County: 2.617 versus 1.671 and 3.792 versus 2.834, respectively. This suggests that while both locations could produce an above-average employment and income multiplier effect, the impact will be the highest in Benton County—most likely because animal food manufacturing is more integrated into the local economy. There was also a large difference in unemployment rates between the two counties: Benton County's rate is slightly below (but not significantly different) from the national average, while Boone County's rate is lower than the majority of U.S. counties. Although neither county suffers from a relatively high unemployment rate, the z-score for Benton County suggests that the need for jobs may be greater there than in Boone County.

[insert Table 1 this area]

In this example, most other factors have relatively similar scores, suggesting that both areas face similar conditions. Although the employment participation factor may seem to differ between regions, the fact that the z-scores are less than a value of 1.0 away from zero indicates that neither is significantly different from average. It should also be noted that three of the factors in this example produce identical z-scores: job accessibility (Z_o), national industrial forecast (Z_f), and innovation and research focus (Z_n). This is because these factors are measured only at the national industry level and are presumed to be similar across the industry regardless of the location. However, these factors are useful in scenarios where economic development projects in different industries are being compared.

Practitioner Views and Project Studies

Following the development of a theoretical background supporting the basic assumptions and factor-measurement approach required for the development of the assessment tool, the team conducted research into the views of success as determined by "real world" practitioners within EDA. Because the tool is meant to serve economic development reps in the field, as well as regions applying for investment, the team felt it was essential to ensure that the model includes the intangible factors that professionals recognize as driving successful public works projects.

Additionally, this approach provided an opportunity to assess the degree to which practitioner views on the drivers of economic development success align with those of theorists and researchers. The two groups have been known in the past to disagree on the definition of economic development and what constitutes economic development success (Fasenfest & Reese, 1997). However, our research indicates that practitioners within

EDA, such as field reps and leadership staff, hold views of economic development that are generally consistent with mainstream theory. Additionally, this same group made largely consistent observations regarding the intangible factors they saw as associated with economic development project success.

Survey of EDA Staff

The team conducted an electronic survey of all EDA regional office staff and field representatives, based on an internal email list provided by the agency. The project team sent out two email invitations to complete the survey—once in July and again at the beginning of August—with an additional reminder distributed by EDA leadership via voicemail as well. In total, 37 completed surveys were received out of 55 deliverable email addresses. Of these, 10 were considered partial responses; however, all respondents surveyed completed the primary questions regarding factors important to economic development success. Most unanswered questions involved the provision of more detailed data designed to assist in the identification of potential case study sites.

The survey asked respondents to rate 13 factors in terms of their importance to the outcome of economic development projects. Additionally, the survey requested that respondents identify one factor they believed to be most important in driving the success of projects. The results of this section of the survey are illustrated in Table 2.

[insert table 2 around here]

The 13 factors listed in the survey were selected by the team based on the theories identified in the literature review. Respondents seemed to confirm that the indicators

were all associated with economic development project success, at least to some degree. Every factor was rated as at least "somewhat important" by more than half of the survey respondents. Additionally, only a few indicators were selected as being "not important at all" by any of the survey respondents. This suggests that EDA staff and field representatives are generally in agreement regarding the elements necessary for economic development success.

There was also strong agreement regarding what the most important factor was for predicting a successful project. Over 56 percent of respondents indicated that "strong organizational leadership" is "essential" to project success, far more than any other factor. In total, nearly 90 percent of respondents listed the factor as either "very important" or "essential." Also, approximately half of those surveyed also cited "strong organizational leadership" as the single most important factor for project success.

Although the sample size and design of the survey means its findings can be generalized only to the world of economic developers in the Regional Offices of EDA, it provides valuable evidence of the connection between theory and the practitioners carrying out the work of economic development for the agency. Not only do the results of this survey suggest that EDA staff and practitioners hold a view of economic development that is supported by current theory and research, but they also add additional support to the selection of factors that are included in the evaluation tool.

Identification of Case Studies

Of the 37 respondents that completed the electronic survey form, 11 expressed a willingness to participate in an additional interview session with members of the team. In addition to more in-depth discussions regarding specific instances of project successes

and failures, these individuals were asked to identify recently completed projects that they held to be strong examples of best practices or challenges overcome in the course of their economic development activities. Each of the interviewed reps then identified between one and three project examples that exemplified a successful project based on leadership, implementation, and outcomes in terms of job creation or business activity. With the assistance of EDA staff, the team selected 12 sites to serve as case studies of actual EDA public works investments.

[Insert Figure 1 in this area]

The team attempted to select sites for study that represented the diversity of EDA investment activities. Two sites were selected from each of the six EDA regions, with projects including incubators and training programs funded under the public works investment program, as well as the more common infrastructure projects. However, the sites did not represent a broad range of outcomes; most were deemed successes by EDA staff and only one site could be clearly identified as an example of a project that struggled. Part of the reason for this is practical: projects that struggled or failed were less willing to participate in a case study and in many cases those involved in the original activities have since moved on, leaving no one in the region to answer questions or describe the original process. Additionally, the most severe failures generally do not complete their economic development project, which makes them impossible to find and assess in a manner compatible with the typical, completed EDA investment.

These limitations were not considered a major obstacle; however, since the intent of the case study approach was to develop an understanding of factors associated with success. By its very nature, a case study methodology is not appropriate for identifying causality or generating findings that can be generalized to the broad world of economic development; instead, they are designed to provide a depth of information about the inner workings of an EDA public works investment project. A case study approach provides lessons regarding how the intangible factors, such as leadership, organizational structure, and community support, worked in successful project efforts.

Case Study Findings

Throughout the case study process, local regional leaders described a wide array of activities that they felt contributed to the success of their individual economic development project. Despite some major differences in investment sizes, infrastructure components, and target industries, there still emerged some commonalities that appear to increase the likelihood of success. The team ultimately identified eight key lessons that appeared across the sites involved in the case study process.

1. Stable staffing in regional economic development is key to putting together a regional project. Many of the regions felt that their success could be attributed to a few or even one key leader who pulled the effort together. Relationship building was described as key by some, while others saw having a long-term stable leader involved in the process as a way of sheltering an economic development effort from the effects of shifting political whims.

2. The project must be based on a long-term plan that is focused on the region's strengths and potential. Every successful region was using EDA investment funding as a small part of a larger, long-term economic development agenda. These regions described avoiding the temptation to apply for an EDA investment that would only support a one-time infrastructure upgrade or serve the needs of an individual company; instead, these sites were typically looking for an infrastructure investment that would enhance a larger project, such as road or rail spur construction that would contribute to the development of an industrial park.
3. Strong private investment is necessary for success. Public funding was not a solitary source of support for the most successful projects. Instead, a source of private investment or leadership, such as a large company, usually drove the process. A single business can make quick decisions or pull together disparate interest in a way that is not possible for economic development efforts that are spearheaded only by a public agency.
4. A true regional approach can enhance success. Although it may not guarantee success on its own, most regions saw regional cooperation and communication as necessary to avoid failure. When projects were started without a wide array of regional participation, groups or sub-areas that felt left out sometimes began to protest or resist the project. Successful case study regions described overcoming problems of fragmented interest groups or geographical concerns to create a unified regional approach.

5. The EDA investment represented only a portion of a larger economic development project. Successful activities utilize federal funds to complete one part of a project, such as extending a rail line to companies that also receive training assistance or tax abatements supported by other local sources. Projects that only involve federal monies tend to be too small to have a significant impact and are less likely to be sustained by support from other sources.
6. Reputation of the sponsoring agency is key. Organizations with an established track record and positive political standing led the most successful efforts. Examples include universities and well-established regionwide organizations. Successful regions did not form an organization for the sole purpose of attempting just one project or only to apply for an EDA public works investment. Successful regions were led by organizations with some established political power and a strong reputation that was able to draw together a wide coalition of support.
7. Local funding support from diverse, stable sources was behind the most successful projects. Financial investment is associated with an active commitment to the project. It is also necessary to sustain a larger economic development effort—another factor also positively associated with successful projects.
8. The groundwork is in place before the project begins. Details such as zoning approvals, environmental approvals, tax abatements, and business plans must be completed for most projects to proceed. Most successful

regions described considering these details before applying for investment funding.

Conclusion and Discussion

In addition to creating a simple model for EDA to use in assessing future public works investments, the research and model design process presented in this article can also provide some lessons regarding both the drivers of successful economic development as well as methods for understanding and assessing its impact on a regional basis. While it is true that EDA's programs are not representative of all economic development, the agency's public works investments are the largest and most established form of federal economic development policy, which makes them an important source for lessons that may be applicable to the larger field of practice.

First, our survey of practitioners at EDA highlights the importance of intangible factors to the success of economic development projects. The staff surveyed and interviewed for this project demonstrated a consistent belief in the importance of factors such as leadership, organization, and regional cooperation to the success of economic development projects. During the case study portion of the project, the local organizations provided a consistent example of two important intangible elements of successful projects: that strong individual leaders drive projects, and that regional collaborations prevented problems from arising and sidetracking their efforts. Although these traits would not necessarily be expected to affect the economic impact of the project—which is closely tied to the industry and occupation mixes in the region—there is evidence to suggest that they impact the likelihood of a project being completed,

creating the expected jobs and business activity, and supporting the success of a larger economic development effort.

To ensure success, regions engaging in economic development should be encouraged to engage in leadership best practices. Reaching out to all regional parties and allowing the private sector to lead the way could be key improvements for areas struggling to put together a successful initiative. In the final report to EDA, the team presented a qualitative checklist that could potentially serve as a guide for maintaining a focus on leadership and best practices when putting together a regional economic development effort.

Second, the development of an assessment model offers some valuable lessons about how standardized scoring could be used to help future economic development assessment efforts. For one, the use of standardized values, or z-scores, does not yet seem to be common in the field. Although critics may argue for some change or expansion of the factors we have selected here, the underlying method of utilizing standardized quantitative data measures for comparison still deserves promotion. This simple standardization technique can serve as one answer to age-old arguments that different economic development efforts are too unique to allow for a fair comparison. Since z-scores are standardized against a larger group mean they can appropriately be compared across industries and regions, as well as serving as a constant measure of the direction and magnitude of the performance of the factor in question. Also, because the technique is mathematically simple, it can easily be used with different factors or other quantitative measures that one may wish to include in any analysis of economic development activities.

In the team's opinion, using more data and making relative comparisons between economic development efforts—whether done prospectively or retrospectively—can only improve economic development practice in the long run. The simple citation of employment or income totals—typically in impressively large quantities—is known to be a common practice in the world of economic development; however, it does not constitute fair or effective project evaluation. Instead, data must be used in a comparative light to examine how economic development projects fare compared to alternate projects, as well as community needs and values. In short, to be considered "good," an economic development project should represent a use of funds that is comparatively efficient and appropriate to address the needs of the region.

Future Issues

This project has opened many areas for improvement and continued research. Understanding the effect of intangible factors of leadership on economic success could be improved by research that includes practitioners from a wider range of agencies, so as to make the results more applicable to the overall field of economic development. Additionally, further information is needed regarding the magnitude of effect associated with leadership and organization. Although these traits are admittedly difficult to measure, it might be possible to categorize public works investments or other economic development projects by the presence or lack of specific leadership or organizational traits and then look for mean outcome differences. Although EDA practitioners generally agree that these intangible factors play a role in the relative success of a project, the magnitude of the effect remains unknown.

The quantitative assessment model could benefit from future enhancements as well. Further research into the relationship between our eight factors and their relative impact on economic development outcome measures is needed to address the issue of factor weighting. Currently, our model presents standardized values as unweighted, which by default gives each factor equal weight when compiled into an overall summative measurement. While this equal weighting may not be representative of each factor's relative importance in evaluating the expected impact of a project, the team lacked a significant empirical foundation on which to base a weighting scheme, instead leaving the decision to the end user. Of course, this is only a dilemma for the assessment of a summative project score; if the user chooses to compare projects based on individual factor scores, a weighting scheme is not necessary. Still, research into the explanatory power of each factor in regards to economic development project outcomes is an important step that could improve the evaluative process in the future.

In this article, we share some lessons associated with our attempt at creating an assessment model for EDA. Like any tool, the first version is never perfect; however, both the identification of intangible success factors and the development of a simple quantitative impact model add information for EDA where before there was none. In addition to supporting EDA's efforts, we also hope that some of the lessons from this process will also benefit the larger field of economic development practice. The use of standardized z-scores could easily be used to compare data within and across the whole spectrum of economic development activities—for example examining economic outcomes across the maze of differing state, regional, and municipal economic development programs. Continued expansion of assessment approaches grounded in

research and economic theory can ultimately help improve all types of economic development practice and ensure that both public and private dollars are invested in a manner that is most likely to generate a sizable, positive impact in the community.

Tables and Figures

Table 1

Table 1
Sample Results for a Hypothetical Project

Model variable	Factor description	Z-score results	
		Boone Co.	Benton Co.
Zc	Fit in the region's industrial structure (based on employment multiplier)	1.671	2.617
Zw	Wage effect (based on income multiplier)	2.834	3.792
Zo	Job accessibility to low-skilled workers	0.792	0.792
Zf	National industry employment forecast	-0.469	-0.469
Zp	Regional industry employment forecast	-0.694	-0.608
Zu	Local unemployment rate	-1.126	-0.555
Ze	Local employment participation	-0.128	0.725
Zv	Innovation and research focus (high-tech occupational demand)	-0.442	-0.442
	Overall average score	0.478	0.732

Table 2 Summary of Success Factor Ratings (%)

Factor	Essential	Very important	Somewhat important	Marginally important	Not important at all
Had strong organizational leadership	56.8	32.4	5.4	2.7	2.7
Was part of a long-term, comprehensive, & specific econ. Dev. strategy	40.5	29.7	24.3	2.7	2.7
Demonstrated strong, broad-based community involvement	37.8	51.4	8.1	0.0	2.7
Created jobs that provide high wages by local standards	24.3	62.2	13.5	0.0	0.0
Diversified the region's economic base	24.3	59.5	16.2	0.0	0.0
Created jobs w/ significant opportunities for skill development or career mobility	18.9	43.2	35.1	2.7	0.0
Offered jobs tailored to the skill set of the community's un- and under-employed	16.2	35.1	37.8	10.8	0.0
Created year-round jobs for a seasonal workforce	16.2	43.2	24.3	13.5	2.7
Leveraged a growing or stable regional cluster	16.2	54.1	21.6	8.1	0.0
Spurred entrepreneurship in the community	10.8	62.2	27.0	0.0	0.0
Displayed robust multi-jurisdiction planning or support	8.1	43.2	40.5	5.4	2.7
Involved universities, comm colleges, and other education & workforce develop	8.1	43.2	32.4	16.2	0.0
Assisted in opening or supporting an innovative firm	2.7	48.6	32.4	13.5	2.7

Figure 1 Map of Case Study Site Visit Locations

References

Arena, P., Adams, J.A., Noyes, K., Rhody, S. & Noonan, M. (2008). *Construction Grants Program Impact Assessment Report: Volume 1 Report on Investigation and Results*. Grant Thornton research report with ASR Analytics. Accessed June 10, 2009 at http://www.eda.gov/PDF/EDAConsImpactStudyVolume1FINAL.pdf

Barrows, R.L. & Bromley, D.W. (1975). Employment impacts of the Economic Development Administration's public works programs. *American Journal of Agricultural Economics*, 75(1), 46-54.

Bartik, T.J. (1991). *Who Benefits From State and Local Economic Development Policies?* Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Burchell, R.W., Pignataro, L.J., Epling, J., Haughwout, A.F., Varady, D., Looye, J., et al. (1997). *Public Works Program: Performance Evaluation*. New Brunswick, NJ: Rutgers University (NTIS No. PB97-175434/A15).

Burchell, R.W., Robison, M.H., & Haughwout, A.F. (1998). *Public Works Program: Multiplier and Employment-Generating Effects*. New Brunswick, NJ: Rutgers University (NTIS No. PB98-145295/A15).

Bureau of Economic Analysis. (2007). REIS 1969-2005. [Electronic database on CD-ROM].

Bureau of Labor Statistics (2006). *Local area unemployment statistics.* [Database text file] Access: ftp://ftp.bls.gov/pub/time.series/la/

Drabenstott, M. (2008). An effective overhaul of federal economic development policy: Response to Markusen and Glasmeier. *Economic Development Quarterly*, 22, 92-98.

Economic Development Administration. (2001). *Economic Studies of the Economic Development Administration: An Annotated Bibliography 1995-2001*. Washington, D.C.: U.S. Department of Commerce, Economic Development Administration, Research and Technical Assistance.

Economic Development Administration. (2004). *Public Works and Economic Development Act of 1965, As Amended, Including the Comprehensive Amendments Made by the Economic Development Administration Reauthorization Act of 2004*. U.S. Government Publication No. 108-373, 118 Stat 1756. Washington, D.C.: U.S. Government Printing Office. Retrieved March 31, 2009 from: www.eda.gov/InvestmentsGrants/Lawsreg.xml

Economic Development Administration. (2007). *Standard Terms and Conditions for Construction Projects.* Washington, D.C.: U.S. Government Printing Office. Retrieved April 2, 2009 from: www.eda.gov/InvestmentsGrants/Directives.xml

Economic Development Administration. (2009). *Research Reports*. Retrieved April 2, 2009, from: www.eda.gov/Research/ResearchReports.xml

EDA National Performance Team and Rutgers. (1999). *EDA GPRA Pilot I—Construction Projects*. Final report prepared for U.S. Department of Commerce, Economic Development Administration. EDA Project No. 99-06-07442.

Fasenfest, D. & Reese, L.A. (1997). What works best?: Values and the evaluation of local economic development policy. *Economic Development Quarterly*, 11, 195-207.

Finkle, J.A. (2008). A cautious look into reconfiguring federal economic development programs. *Economic Development Quarterly*, 22, 112-114.

Haughwout, A.F. (1999). New estimates of the impact of EDA public works program investments on county labor markets. *Economic Development Quarterly*, 13, 371-382.

Hodgson, S., Thomas, L., Fattore, E., Lind, P.M., Alfven, T., Hellstrom, et al. (2008). Bone mineral density changes in relation to environmental PCB exposure. *Environmental Health Perspectives*, 116, 1162-1166.

Johnson, K.P. & Kort, J.R. (2004). 2004 redefinition of the BEA economic areas. *Survey of Current Business*, 84, 68-75.

Kwass, P., Siegel, B., Reamer, A. & Roberts, B. (1992). *Evaluation of the U.S. Economic Development Administration's Public Works Program: Analysis and Findings*. Sommerville, MA: Mt. Auburn Associates research report, EDA Project No. 99-10-13740.

Lake, R.W., Leichenko, R., & Glasmeier, A.K. (2004). *EDA and U.S. Economic Distress: 1965-2000*. EDA research report 99-07-13812. Retrieved April 6, 2009, from: www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs/2004julyedaandu_2es_2eeconomicdistressreport_2epdf/v1/2004julyedaandu.s.economicdistressreport.pdf

Markusen, A. & Glasmeier, A. (2008). Overhauling and revitalizing federal economic development programs. *Economic Development Quarterly*, 22, 83-91.

Martin, R.C., & Graham, R.E. (1980). The impact of Economic Development Administration programs: Some empirical evidence. *The Review of Economics and Statistics*, 62(1), 52-62.

Partridge, M.D., Rickman, D.S., & Li, H. (2009). Who wins from local economic development? A supply decomposition of U.S. county employment growth. *Economic Development Quarterly*, 23, 13-27.

Porter, M.E. (1998). *The Competitive Advantage of Nations: With a New Introduction*. New York, NY: Free Press.

Regional Dynamics. (2007). REDYN model multipliers. [Electronic database files].

Rossberg, J.I., Melle, I., Opjordsmoen, S., & Friis, S. (2008). The relationship between staff members' working conditions and patients' perceptions of the treatment environment. *International Journal of Social Psychiatry*, 54, 437-446.

Singerman, P. (2008). Repurposed federal economic development programs: A practitioner's persepective. *Economic Development Quarterly*, 22, 99-106.

Stevens, B. & Lahr, M.L. (1988). Regional economic multipliers: Definition, measurement, and application. *Economic Development Quarterly*, 2, 88-96.

U.S. General Accounting Office. (1996). *Economic Development: Limited information exists on the impact of assistance provided by three agencies*. Government report GAO/RECD-96-103. Washington, D.C.: General Accounting Office.

Endnotes

[i] In addition to the Public Works program, these include: Economic Adjustment, Research and National Technical Assistance, Local Technical Assistance, Partnership Planning, University Centers, and Trade Adjustment Assistance. For more information see: http://www.eda.gov/AboutEDA/AbtEDA.xml

[ii] An example of EDA's "Investment Policy Guidelines" can be found at www.eda.gov/InvestmentsGrants/Inpolguideline.xml. These guidelines do not constitute official policy or published criteria for economic development awards; however, they appear to constitute a summary of the general objectives of the agency's activities.

[iii] The authors conducted a journal search in March 2009 using the Electronic Collections Online (ECO) and ArticleFirst databases to find peer-reviewed articles containing references to the keyword terms "economic development administration" and "impact." The only work newer than 1996 that estimated impacts or outcomes was Haughwout (1999). The May 2008 issue of *Economic Development Quarterly* contained a special focus section addressing the theme of federal economic development; however, these pieces discuss broader theoretical implications.

[iv] For this project, Regional Dynamics was contracted to generate a custom set of employment and income multipliers using the REDYN model. Both employment and income multipliers were generated for 298 four-digit NAICS97 codes in each of the 179 BEA regions. Additionally, forecasts generated by using the REDYN model were used for the period 2008 through 2013. For more information about Regional Dynamics and the REDYN model, see: www.redyn.com.

[v] Occupational skill demand was measured by first determining the occupational mix of each four-digit NAICS industry using the industry-occupation matrix available from the Bureau of Labor Statistics. These occupations were then matched with skill level data from O*NET (online.onetcenter.org), the federal government's official occupational data source. For the purposes of the model, occupations requiring a bachelor's degree or higher level of education are considered to be high skill.

[vi] See note 5.

[vii] A search conducted using the EconLit database on April 10, 2009, using the keyword terms "z score" and "economic development" revealed 14 articles; however, none focused on regional economic development, evaluation, or the assessment of project test scores. The predominant theme was international development issues such as nutrition and poverty, which were the topics of 12 out of the 14 articles listed.

[viii] Boone County, Iowa, is located to the northeast of Des Moines, Iowa, and is part of the Des Moines-Newton-Pella economic area. Benton County, Iowa, is located on the east side of the state and is a part of the Cedar Rapids economic area.