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Evaluation of Regional Collaborations for Economic Development

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Paper presented at the 32nd Annual Association for Public Policy Analysis and Management (APPAM) Research Conference in Boston, MA. The authors are currently partnering in an evaluation of the Workforce Innovation in Regional Economic Development (WIRED) Generations II and III initiative for the U.S. Department of Labor Employment and Training Administration (ETA). Although some of the topics addressed in this paper arose in that evaluation and some examples in this paper come from published interim reports for that evaluation, no ETA funding was used to write the paper, and the views expressed do not necessarily represent those of ETA or the Department of Labor. Furthermore, the views expressed do not necessarily represent those of the W.E. Upjohn Institute for Employment Research or Public Policy Associates, Inc. The usual caveat applies.

A great deal of policy enthusiasm has been emerging of late around the concept of innovation clusters. A recent report (Muro and Katz, 2010) suggests, “clusters—geographic concentrations of interconnected firms and supporting or coordinating organizations—have reemerged as a key tool and rubric in Washington and in the nation’s economic regions” (p. 9). In July, the SECTORS (Strengthening Employment Clusters to Organize Regional Success) bill was passed unanimously in the House. If passed by the Senate, it will add sectoral planning and implementation grants to the reauthorization of the Workforce Investment Act (WIA). Federal agencies have been quick to support these endeavors, with the Small Business Administration (SBA) funding 11 small business innovation clusters in September of this year, and the Economic Development Administration (EDA) of the U.S. Department of Commerce launching a Regional Innovation Strategies Initiative (see EDA, 2010).

The purpose of this paper is to raise some evaluation issues to take into account in assessing regional innovation clusters. Our belief is that like almost any policy initiative, the effectiveness of regional innovation clusters is highly variable and depends upon several factors including their design and implementation. Some regional clusters have accomplished or will accomplish quite significant goals and will make a difference in the economic growth dynamics of areas and sectors. Others are unlikely to pass any sort of cost-benefit test of effectiveness. We believe that credible evaluation evidence can be used to identify the “macro” success of regional clusters and can be used to illuminate the issues/barriers/constraints that may be impeding success in other clusters. We fear that without a sound understanding of what constitutes a regional innovation cluster, careful consideration of the factors that may influence its success, a thoughtful evaluation design, and adequate evaluation evidence, regional innovation clusters will become the regional/metropolitan economic growth policy *fix du jour*

and policy makers and economic development entities will move on to the next “silver bullet” when clusters are perceived to have run their course.

The experience base that we bring to this paper is as the evaluators for the U.S. Department of Labor-funded evaluation of the Workforce Innovation in Regional Economic Development (WIRED) Generation II and III regions. The paper does not present evaluation findings from that project per se, but rather uses it as well as other well-known evaluations to provide examples of the issues that we discuss.

For purposes of this paper, we will use the term “regional innovation cluster” to denote the entity of interest. Within that terminology, we include sectoral initiatives, workforce intermediaries, and cluster initiatives. The next section of the paper discusses the various types or purposes of regional innovation clusters—they are not, in general, targeted on the same outcomes. The ensuing three sections of the paper essentially dissect the phrase, “regional innovation cluster.” The sections consider the geography of a cluster, the role and nature of innovation in cluster entities, and the definition of a cluster. Following those sections, the paper turns to three key evaluation issues—addressing the attribution problem in gauging success of a cluster, sample selection, and measurement of both costs and benefits. The final section presents some recommendations or findings that come out of our considerations.

CLUSTER TYPES AND PURPOSES

In our view, the clusters being considered here, and of policy interest, are characterized by two attributes. First, they are attempting to exploit localized agglomeration economies. Second, they have a coordinating or support organization, i.e., collaboration is present. Localized agglomeration economies are externalities that occur when firms in the same industrial

sector locate in the same general area. These economies, or positive externalities, are at least threefold. First are the externalities that arise from an accessible labor pool with appropriate skills. Not only do incumbent workers possess the needed skills heightened by on the job training and experience, but also training institutions in the region that are meeting the local demands are likely to offer to emerging workers the skill training that is suitable to the cluster. The second benefit is the development of supplier firms (second and third tier firms) that keep inputs available and presumably competitively priced. The third benefit may be referred to as network effects: proximity facilitates communication flows that may lead to innovation, business-to-business transactions, and increasing interdependence..

The second attribute of a regional innovation cluster is the presence of an organizing entity that promotes actively collaboration and partnerships as well as supporting organizations that facilitate such collaboratives. In general, the organizing entity is a nonprofit or governmental entity that brings together the private and public sector to accomplish one or more broad objectives.

At a basic level, an evaluation of a cluster will assess whether it has achieved its objectives. But, in fact, different regional innovation clusters have different types of objectives. We will highlight four. These objectives are not mutually exclusive, but they also are not totally in agreement with each other. If we were to draw a Venn diagram, there would be substantial overlap, but also areas that do not overlap.

The first type of cluster is targeted on economic growth. Porter's (1990) original identification of clusters (actually diamonds) came from a competitive advantage perspective. The objective of clusters from this perspective is to grow regional economies using one or more existing clusters and supplier networks. Active employer engagement from virtually all of the

firms in the sector is vital to this type of cluster. The organizing entity may facilitate workforce development and educational activities to support the cluster and may organize meetings/events where networking can take place. Incumbent worker training and development is a primary focus of this type of cluster, although activities to support the educational development of emerging workers or pre-career individuals in the “pipeline” may be offered. If it were possible, the ideal evaluation of the success of such a cluster would be to observe indicators of growth such as gross regional product or regional income with and without the cluster over a moderate time frame along with measures of the impact of incumbent worker training on cluster firms as evidenced by increased productivity or related measures. The cluster would be deemed successful if the differences in economic growth indicators with and without the cluster in this thought experiment were positive.

The second type of cluster is more visionary and attempts to bring in or foster the embryonic growth of a new cluster in an area that is considered to have great growth potential. For example, a region may attempt to become a leader in the “green economy,” or it may attempt to become a cluster that attempts to bring some aspect of information technology (IT)/cyberspace to an area. The impetus for this type of cluster is more likely to come from the public sector or educational sector, and presumably much of its initial activities would center around attracting stakeholders, reviewing existing data, identifying resources, and developing an agenda for strategic action. Evaluation of this type of cluster would involve a longer time frame and would incorporate more formative evaluation activities than the first type cluster described above. Metrics for measuring success would be more targeted on the sector being developed such as exports from, employment growth in, and market share of the sector within the region.

The third type of cluster is characterized as community or area (re)development. The goals of many workforce intermediaries (see Giloth 2004) and local workforce investment boards (WIBs) under WIA are to improve the labor market outcomes (employment and earnings) of disadvantaged individuals and simultaneously grow the regional economy. Having labor market outcomes primary suggests that it is vital for these types of clusters to engage employers who are committed to hiring as well as education/training institutions to effectively bring together the demand and supply sides of the labor market. As opposed to the first type of cluster, this cluster type will primarily focus on unemployed and underskilled individuals, and will generally not support incumbent worker training. The sectoral representation will be broader than in other types of clusters. If it were possible, the ideal evaluation of the success of these collaborative organizations would be to observe employment rates and earnings with and without the entity over a short to moderate time frame. The null hypothesis, of course, would be that the employment rate differential with and without the cluster would be positive.

The final type of cluster is one that targets particular types of businesses for which public policy or interest groups advocate. For example, the objective of SBA's Regional Clusters Initiative is to accelerate small business opportunities in existing regional clusters across the country. SBA is supporting technical assistance, business training, counseling, mentoring and other services that will support job growth and competitiveness of small businesses.¹ One could imagine similar initiatives for minority owned or women-owned businesses. If it were possible, the ideal evaluation of the success of these regional clusters would be to observe indicators of job growth and competitiveness of small businesses in a region with and without a cluster. Again, the cluster would be expected to contribute to positive differentials.

¹ From Small Business Administration RFP # SBAHQ-10-R-0021, July 8, 2010.

Evaluation Lesson

Assessing the success of a cluster requires a consideration of the objectives of the cluster and proper time frame. Key decisions for the evaluation are the unit of analysis, outcome measures, and time frame for measuring outcomes. The unit of analysis may be the entire region, or it might be individuals or firms within the region. Outcomes might include “macro” regional variables such as gross regional product, employment or unemployment rates, or others. On the other hand, outcomes might be “micro-based,” such as individuals’ earnings, employment, or income. Time frames may be relatively short or long.

A workforce intermediary whose objective is mainly targeted on disadvantaged workers may achieve significant results for its target populations in terms of employment or earnings, but the region in which it is located may not grow nearly as fast as others. Similarly, a region with an active cluster in a high tech, high skilled sector may not have an appreciable impact on poverty or low-skilled unemployment. An initiative to focus on a developing sector such as the green economy may not achieve success for several years, and might pale in the short term in evaluative comparison to a cluster organized around an existing industry.

GEOGRAPHY, OR WHAT IS A REGION?

Not only do the objectives of different types of clusters differ, but also there is considerable variability in what constitutes a region. In order to take advantage of agglomeration economies and for the coordinating entity to effectively organize and communicate, there needs to be geographic concentration, although this assumption has been challenged due to the growing use of technology and virtual connections, particularly when the cluster is located in rural

economies. Yet, the question of what constitutes reasonable geographic bounds for a cluster remains important.

On the one hand, the advent of accelerating technological progress in telecommunications and transportation has made it possible for regions to be more expansive. Meetings can be virtual, and of course, communication between partners is essentially boundless. On the other hand, an important benefit of agglomeration economies comes from physical proximity, and increased opportunities for face-to-face interaction, relationship building, and joint pursuit of business opportunities. Furthermore, the costs and ease of coordination generally increase with the expanse of the region. As noted, an important element of a cluster is interdependence.

Regional economists have considered what constitutes the definition of a region (see, for example Coombs 2001 and Choudhury 1994), and the upshot is that most attempts at a definition finesse the issue and indicate that it is context-specific. The Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce, however, has partitioned the U.S. into 179 economic areas. According to Johnson and Kort (2004), the areas represent the relevant regional markets for labor, products, and information. Regions are mainly determined by commuting patterns on the theory that such patterns delineate local labor markets. Interestingly, many of the BEA economic areas cross state lines, which reinforces the notion that jurisdictional boundaries and administrative rules should not and do not limit economic regions. Our intuition is that clusters should span regions that are no bigger than these BEA economic areas, and are preferably smaller—single metro areas with their attendant labor sheds. In the WIRED initiative, some of the regions covered entire (large) states or significant fractions of (large) states. Our concern is that such large areas result in resources being significantly diluted and coordination and communication costs being significantly increased.

The geographic expanse of the cluster is somewhat integrated with the type of cluster and with the sector. Clusters aimed at community development are likely to be located in a single metro area. Clusters whose purpose is the development or deployment of a “new” or emerging sector are likely to be more widespread geographically. The nature of the sector, such as components of the green economy, may influence, or even dictate, the geographic expanse.

Evaluation Lesson

A formative evaluation of a cluster should assess the intentionality with which the geography of the cluster has been constructed. Convenient political alliances should be secondary to the potential economic ties and benefits that could be gained. Clusters spread over large geographic areas are likely to be less effective, and more difficult and costly to coordinate and maintain. Furthermore, they will be more expensive and more difficult to evaluate. The grant periods for virtually all of the WIRED regions have expired (a couple of regions received grant extensions), and are grappling with the issue of sustainability. Ideally, the regions are evaluating their geographic composition as they do so.

INNOVATION

The I in WIRED stands for innovation, and clusters are referred to as Regional Innovation Clusters. The word innovation has a cachet that sounds appealing. However, we think that there is some confusion around the term, or at least a lack of common agreement. Whereas the definition of innovation emphasizes that it is “the introduction of a new approach,”²

² See Dictionary.com; <http://dictionary.reference.com/browse/innovation> accessed October 26, 2010.

we would suggest that innovation connotes a second meaning in addition to “new-ness”, which is *improvement* over the status quo approach.

No matter what their type or purpose, clusters arise because of dissatisfaction with the effectiveness of the status quo. So the effectiveness of clusters depends on their ability to trigger and harness innovation. However, innovation can be of at least three different types. Innovation can occur in a productive process, and this is typically the type of innovation that is thought to lead to economic growth. A new product might be developed or an improved process of production might be developed in a sector. This type of innovation is somewhat tricky for a cluster because the innovator will likely wish to profit from the discovery through patent protection. Others within the cluster may ultimately benefit if the innovation stimulates the local economy and if the innovation eventually gets distributed.

The second type of innovation would be an improvement to the infrastructure of the cluster, e.g., communication, economic development, or talent development systems. This is the type of innovation envisioned in WIRED. The underlying theory was that improving the coordination and collaboration of economic development agencies, workforce development agencies, and education would result in a transformation of a region. If the infrastructure or coordination of a cluster significantly improves, then all constituents of the cluster will benefit and the likelihood of the cluster achieving its goals is improved.

The third type of innovation involves using the partners in a cluster to collectively find solutions to local problems. For example, Project Quest, in San Antonio, organized by two community based organizations after Levi-Strauss’s 1990 announcement of a closing of a 1000-worker plant in San Antonio, came up with unique solutions to the problem of having a surplus of low-skilled labor and a shortage in higher-skilled occupations. According to Lautsch and

Osterman (1998), conversations with employers led to a training program for banks in a new occupation entitled: financial customer services, and conversations with hospitals led to enhancements of the training for health unit clerk. The flow of work in banks and hospitals was re-engineered to accommodate the employment of lower-skilled workers who received appropriate training. In short, the innovation here was to “think outside the box” in terms of the definition of an occupation.

Evaluation Lesson

As the effectiveness of a cluster is assessed, its innovation is an important outcome. However, measuring such innovation may differ across clusters. In some cases, new product/process patents may be a reasonable measure of success. However, in other cases such as the Project Quest example, the innovation may occur in job descriptions, or in the case of WIRED, the extent to which talent and economic development systems are aligned.

WHAT CONSTITUTES A SECTOR?

In some of the WIRED regions, the targeted sectors range across a wide spectrum. For example, a region’s implementation plan may identify its “targeted” sectors as manufacturing, health care, and agriculture. Such breadth can hardly be referred to as “targeted.” Just as there needs to be intentionality around geography, there needs to be intentionality around targeted sectors. In general, we believe that there should be an inverse relationship between the breadth of sectoral involvement and breadth of geography. A cluster whose purpose is community development in a metropolitan area is likely to engage employers from a wide range of

industries. A cluster that is targeted on a very specific industry—either an existing industry or a developing industry—will likely cover a wider geographic expanse.

While it might be the case that some regions might be too broad in their targeting of sectors, it is also true that some might be too narrow. The working definition of a cluster is a geographic concentration of interconnected firms. Strict competitors in the same precise sector would be one way that firms are interconnected, and of course they would have an interest in an adequate, well-trained labor supply. But suppliers are also an interconnection to keep in mind, and suppliers generally will not be in the same industrial sector classification.

In short, the sectoral constituency of a cluster depends somewhat on the overall purpose of the cluster. If the cluster has a relatively narrow geographic footprint, then firms will be interconnected by proximity, and there is less of a reason to limit sectors. Otherwise, targeting involves specific focus, but with allowance for supply relationships.

Evaluation Lesson

Formative evaluation of a cluster should explore how and why its sectoral makeup was chosen. Furthermore, in terms of impact, a broader definition of the cluster will make it more difficult to measure impact because of the possibility of many intervening factors.

ATTRIBUTION PROBLEM: WHAT IS THE COUNTERFACTUAL?

In evaluating the outcome of any initiative or intervention, the goal is to come as close as possible to conducting the thought experiment of comparing the outcomes that actually occurred to the outcomes that would have occurred in the absence of the initiative or intervention. For a regional innovation cluster, that means to observe the regional economic outcomes with and

without the cluster. Since that thought experiment is impossible to conduct, evaluation requires some type of emulation of the latter, which is called the counterfactual.

The so-called gold standard of evaluation is a randomized, controlled trial (RCT). In such a trial, units in the analysis population are randomly chosen to receive the intervention. Outcomes for the units that are chosen are compared to outcomes for those that are randomly screened out. The difference in outcomes comprises the effect of the cluster, and the attribution question is resolved because there are no differences between the populations, except by random occurrence.

In evaluating regional innovation clusters, the issue is the unit of analysis. If regions are considered the unit of analysis, then an RCT would involve randomly assigning some regions to initiate a cluster, and others to refrain from initiating a cluster. This is not feasible, so an RCT evaluation cannot be used if the economic growth dynamics of regions is the primary outcome of interest, which it presumably is for the Porter-type clusters geared toward economic growth.

On the other hand, if micro units such as firms or individuals are the unit of analysis, then RCT may be feasible. It is unlikely that firms would subject themselves or be subjected to random assignment; so that approach is likely to be feasible for individuals only. And in fact, an RCT evaluation has been conducted in which individuals were the units of analysis. Maguire et al. (2009) found significant positive impacts of sectoral initiatives on earnings, employment, hours of employment, and benefits in a 24-month follow-up period. In an RCT, the counterfactual consists of services or activities that occur in the region absent the cluster's activities.

If RCT is not feasible, the alternatives that may be available to evaluators are a quasi-experimental matched comparison methodology, a comparison of pre- and post-intervention

contexts, and self-reports of impacts. The matched comparison methodology involves formulating a comparison group of units of the analysis population, and comparing the outcomes for this group to the outcomes for units of the analysis population that received the intervention. In the evaluation of the Generation II and III WIRED regions, the outcomes of interest were mostly at the regional level, and we attempted to find comparison regions by matching on characteristics such as population, number of urban areas, unemployment rates, employment by industry, and others. In a matched comparison methodology, the strongest analytical framework is to estimate effects by difference-in-differences. That is, the evaluator should compare the change in outcomes before and after the initiative has been implemented to the change in outcomes for the same time period for the comparison regions. The strength and validity of this approach depends on the ability to find reasonable comparison sites. In a matched comparison site method, the counterfactual is the activities that are available in the comparison sites.

If it is not possible to find comparison sites, then the evaluator is left with comparing outcome variables for the region after the initiative to those that existed prior to the initiative, or to ask key stakeholders in the region to self-report changes in the region. The counterfactual in the former is the region as it existed prior to the formation of the cluster, and the counterfactual in the latter is the region as recalled by the stakeholders prior to the formation of the cluster. In either case, the attribution problem is difficult to resolve because many events may occur in the regions over time that may or may not be independent of the activities of the cluster.

Most evaluations of major regional cluster initiatives to date have used either the post-minus pre-initiative approach or the self-report approach to resolve the attribution question.

Pindus, et al. (2004) provide a nice summary of studies prior to 2004:

A recent study examined six sector projects in depth. Using a pretest and posttest research model, the evaluators conducted a three-year longitudinal study of program participants and documented

substantial and sustained improvements in employment and earnings for individuals in all programs. Evaluators found that 94 percent of respondents were employed for some period in both follow-up years of the study, compared with only 67 percent in the baseline year, and that the percentage employed full time increased each year. The median personal earnings of program participants rose from \$8,580 at baseline to \$14,040 in the year following training and to \$17,732 in the second year after training as the result of an average 31 percent increase in wage rates as well as increases in hours worked (Conway and Rademacher 2003). In addition, over 78 percent of jobs provided access to benefits such as health insurance, paid vacation, and paid sick leave (Zandiapour and Conway 2002). ...

Similar results were found in a separate study of 10 sector projects. The median hourly wage for program participants who worked full time during the two years before entering the sector programs was \$7.00 an hour, and the mean hourly wage of the most recent full-time job before training was \$8.15 an hour. Among participants who completed the program, the median wage at placement was reported to be \$8.50 an hour, and the mean wage at placement was \$9.73 per hour (Elliott et al. 2002, p. 3).

In the WIRED evaluation of Generation I regions, Almandsmith et al. (2008, 2009) rely on information collected from key stakeholders in the regions, but they also compare economic indicators for the region to the entire state(s) that house the regions. In the evaluation of the Generation II and III regions (Hollenbeck and Hewat et al. 2010), employment data for the regions are compared to matched comparison regions.

Evaluation Lesson

A crucial component of the evaluation of a regional innovation cluster is its net impact on the region. That is, how is the region different (improved) with the cluster in operation relative to what would have occurred if the cluster had not existed. Since the latter state of the world does not exist, it is necessary to derive a counterfactual. If feasible, an RCT would be the most rigorous source of net impact data. However, random assignment is not usually feasible. Thus evaluators need to consider alternatives. In many cases, evaluators “punt,” and simply document outcomes that have occurred in the region. Essentially, the counterfactual is left up to the consumer of the evaluation.

In some cases, a matched comparison methodology is feasible. If this approach is used, evaluators must defend the matching algorithm that is employed, and in particular, the characteristics used for matching. In a matched comparison methodology, the analytical approach to use in estimating net impacts should be difference-in-differences.

It behooves the evaluator to try multiple methods, so the next most rigorous approach would be post- minus pre-intervention. Finally, asking key stakeholders to self-report changes is perhaps the weakest method for determining net impacts.

THE PROBLEM OF USING A SELECTED SAMPLE IN EVALUATION

An issue of importance to policymakers in particular is the external validity of an evaluation. In other words, would the results from an evaluation of a cluster hold true for other clusters? How generalizable are the results? Another way to frame this issue is to address whether or not the units of observation in an evaluation are systematically different from a general population.

It seems as though no matter where you look, evaluations are using selected samples.

The McGuire et al. 2009 study is quite upfront about this,

Through nominations from leaders in the workforce development field, P/PV identified organizations that had been operating workforce programs for at least three years, had well-implemented training that served more than 100 people each year and targeted an occupation or cluster of occupations with jobs paying more than \$8 an hour (p. 1).

Thus, this study's quite positive findings are only generalizable to sectoral initiatives that meet these three criteria.

Muro and Katz (2010) strongly recommend that clusters should only be attempted where clusters already exist.

- **Don't try to create clusters.** Clusters can't be created out of nothing and cluster initiatives should only be attempted where clusters already exist. The preexistence of a cluster means that an industry hotspot has passed the market test. By contrast, efforts at wholesale invention will likely be fraught with selection issues, inefficiency, and probably failure and waste (p. 6).

Similarly, the WIRED evaluations (Almandsmith et al. 2008, 2009; Hewat and Hollenbeck 2009; Hollenbeck and Hewat 2010) all point out that the effectiveness of the regions seemed to be dependent on the existence of a collaborative effort prior to the WIRED investments. In short, these observations suggest that the evaluation findings about the effectiveness of regions may depend on positive selection. Determining the effectiveness of the cluster initiative is confounded by the fact that a cluster or collaboration existed. Is the effectiveness attributable to cluster's activities or to the prior existence of a cluster or collaboration?

Interestingly, Shaver and Flyer (2000) warn about potential negative selection. They note that in a collaboration in which there is considerable sharing of information, the benefits of agglomeration economies flow in both directions. Firms share information, but they also receive information. This implies that the firm that is the most productive/innovative in the region has little to gain and a lot to lose. So these scholars suggest, and find evidence, that the most successful firms in a region tend not to get involved in partnerships; whereas the firms that are struggling the most tend to get involved.

Evaluation Lesson

The results from an evaluation are, at most, generalizable to the characteristics of the units of observation. If a regional innovation cluster is limited in terms of industries, firms, activities, and so forth, then the evaluation results are going to be similarly limited in scope.

RATES OF RETURN REQUIRE MEASURING COSTS AND BENEFITS

For any investment, the rate of return is the interest rate that equilibrates the flow of future benefits to the investment cost. For regional innovation clusters, entities within a region have made the decision to invest in formalizing a cluster with the expectation that the region will capture returns in the form of regional economic growth. Costs involve not only the financial costs of collaboration such as communication costs or meeting costs and the costs of providing services to individuals or firms, but also the opportunity costs of individuals' time and effort, which is likely to be the largest share of overall costs. Benefits include the net economic and labor market impacts of the cluster and benefits that might accrue to partners that result from the networking that occurs. Based on the WIRED initiative, we sense that the latter may be the most valuable economic benefit to be derived from a cluster. Time and again, we were told of new relationships and communication channels that were opened up because of the partners working together.

Almost none of the evaluations of sectoral or regional cluster initiatives seems to discuss the cost side of the equation. For example, the Maguire et al. 2009 study finds that “participants in sector-focused training earned 18.3 percent—about \$4,500—more than controls over the 24-month study period.” This is an impressive economic benefit that might even grow over a longer time frame, although the figures in the study seem to portray a closing of the gap toward the end of the analysis period. But what about costs? The participants received focused training that lasted from 400 to 600 hours at one site, 500 hours at a second site, and 40 to 160 hours at a third site. In addition, participants received a range of support services such as child care, transportation, life skills training, counseling, job search assistance, and remedial education. No data are provided, but it would seem that the per participant cost of this level of training and

support would be in the range of \$4,000 to \$6,000. The study indicates that about one-third of the controls also participated in training, but it is unlikely that these individuals would have found training of similar quality and cost. Assume that the controls training ranged from \$2,000 to \$4,000. Under these assumptions, the incremental cost of services for the treatment individuals was about \$4,000 (\$5,000 per participant for the treatment population times 100 percent take-up minus \$3,000 per participant in the controls times one-third take-up.) The rate of return to society under these assumptions would be roughly 6.0 percent.

This social rate of return is not insignificant, but we are reminded of the economic dictum of no free lunch. It is likely to be the case that high quality sectoral initiatives yield substantial economic returns, and that clusters that have fewer resources for activities will yield much smaller returns.

Evaluation Lesson

It is important to extend the evaluation of regional innovation clusters to net impact and cost-benefit (rate of return) analyses. This will involve collecting not only benefit data, but also cost data. Clusters involve an investment of resources with the goal of generating future benefits. A full picture of their effectiveness requires measuring both.

RECOMMENDATIONS/FINDINGS

Regional innovation clusters have been around for at least a couple of decades. The notion that they may yield significant economic benefits and should be a primary tool of policymakers, however, has only recently gathered momentum. There may be considerable merit to this notion, but rigorous evaluation needs to be the means of showing this merit.

Formative evaluation needs to be done to determine the precise objectives and goals of the cluster. These objectives need to be synchronous with the geography of the region and with the definition of the cluster.

Summative evaluation decisions include units of analysis—employers, individuals, or regions; metrics to measure outcomes; time periods over which outcomes will be measured; and a methodology for determining the counterfactual and therefore allowing net impacts to be estimated/calculated. Finally, the evaluator needs to measure both costs and benefits.

We are confident that regional innovation clusters that promote a culture of effectiveness and continuous improvement and that are able to attract the resources to provide high quality activities will reap positive and significant rates of return. On the other hand, if policymakers get the impression that any and all clusters will succeed, then we predict that clusters will lose their cachet and be passed over for the next economic development silver bullet.

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