

Creating an Entrepreneurial Appalachian Region:

Findings and Lessons from an Evaluation of the Appalachian Regional Commission's Entrepreneurship Initiative 1997 – 2005



Evaluation Team:

Deborah Markley, RUPRI Center for Rural Entrepreneurship
Erik Pages, EntreWorks Consulting
Brian Dabson, RUPRI
Thomas Johnson, RUPRI
Sara Lawrence, RTI
Sara Yanosy, RTI
Karen Dabson, RUPRI Center for Rural Entrepreneurship

April 2008

ACKNOWLEDGEMENTS

The Evaluation Team – Deborah Markley, Erik Pages, Brian Dabson, Thomas Johnson, Sara Lawrence, Sara Yanosy, and Karen Dabson – would like to acknowledge the important role played by Catherine Renault on this project. Cathy was involved in developing the proposal and early project design, before returning to her roots in Maine as the Director of the Office of Innovation, Department of Economic and Community Development. She also provided input on the final report. The team would also like to acknowledge the input of the advisory group – Thomas Lyons, Edward Malecki, and Jonathan Potter. Their keen insights and input throughout the project helped to strengthen project design and the final report. The team also benefited from discussions held with ARC staff throughout the project, particularly Greg Bischak and Ray Daffner, as well as a group of advisors who discussed a summary report on key findings.

The senior members of the evaluation team would also like to acknowledge the heroic efforts of two members of the team, Sara Lawrence and Sara Yanosy, to develop and complete the database for the sample projects. They diligently tracked down project leaders to discuss projects that, in some cases, were completed almost 10 years earlier. They shared data and insights that greatly enhanced this evaluation.

Finally, this evaluation would not have been possible without the many individuals throughout the ARC region who shared project data, recollections and insights into the importance of the ARC Entrepreneurship Initiative to their individual rural places and to the broader region. We acknowledge their important contribution and greatly appreciate the time they took to talk with team members about their past and ongoing efforts to build a more entrepreneurial Appalachian region.

EXECUTIVE SUMMARY

From 1997 through 2005, the Appalachian Regional Commission (ARC) invested nearly \$43 million in a ground-breaking program to stimulate and support entrepreneurship across Appalachia. The Entrepreneurship Initiative (EI) was the first large scale attempt to give greater focus to homegrown business development as a regional economic development strategy.

The Rural Policy Research Institute (RUPRI), the RUPRI Center for Rural Entrepreneurship, EntreWorks Consulting, and RTI were commissioned by ARC in 2006 to conduct an evaluation of EI in terms both of outcomes achieved by a sample of funded projects and of broader policy impacts across the region. The evaluation team undertook literature reviews, reviewed project files for a sample of 114 projects, conducted phone interviews with 36 stakeholders and experts, developed a metrics framework, completed interviews with project staff associated with 88 projects, made four site visits, and conducted a meta-analysis of the outcomes and impacts. The team's work was informed by a three-person advisory committee of leading academic experts on entrepreneurship – Dr. Thomas Lyons, Dr. Edward Malecki, and Dr. Jonathan Potter.

A review of entrepreneurship trends in the region during the EI provided the context and backdrop for ARC's investments. Over the period of the EI, trends in nonfarm proprietor and microenterprise employment in Appalachia showed increases in line with the nation as a whole, but trends in nonfarm proprietor income showed the region lagging behind the nation and slipping further behind by 2005. Data on the impact of entrepreneurship on the local economy showed that only 15 percent of Appalachian counties saw income increases associated with entrepreneurial activity that were higher than the national rate. It appears that entrepreneurship had greater impact in terms of both employment and income in the southern tier of Appalachian states. This evaluation was not designed to discern cause and effect between EI investments and these trends; however, the context is important for interpreting evaluation findings and understanding the resulting recommendations.

Also of contextual importance is the rapid growth in interest in and adoption of entrepreneurship development policies and programs since the EI began in 1997. A review of current literature provides many insights on the linkages between entrepreneurship and regional development and on the efficacy and impact of different types of entrepreneurship programs. This body of research work was not available to the designers of the EI but was particularly helpful in conducting the evaluation and determining appropriate performance metrics.

The evaluation team identified three goals that were at the core of the EI – to increase the number of entrepreneurs establishing businesses in the region, to increase the survival rate of such ventures, and to increase the proportion that develop into high growth businesses that create jobs and wealth in Appalachia.

These goals were operationalized through five program categories – entrepreneurship education, access to capital, business incubators, sector interventions, and technical assistance and training. There was also a sixth cross-cutting category of community capacity-building.

As identified through the final reports submitted to ARC, the EI led to the creation of at least 9,156 jobs, the retention of a further 3,022 jobs, the formation of 1,787 new businesses, and the provision of services to 8,242 businesses. The cost per job created was \$4,693, which compares favorably with other economic development efforts. ARC investments were made in 340 unique projects across the region at an average investment per state of \$3.3 million and investment per capita of \$1.82. The total ARC investment has leveraged an additional \$72.8 million in private investment for those projects that have been closed, a figure that is projected to rise to \$109.9 million when all projects in the portfolio have been completed.

Other metrics identified through in-depth investigation of outcomes from the sample of projects expand on this picture. In the 88 projects included in the sample, over 11,500 students and teachers participated in or received training in entrepreneurship education projects, 1,500 entrepreneurs took part in sector-focused activities and another 1,620 received training and technical assistance.

The evaluation team's assessment of qualitative impacts were drawn from interviews with project leaders most familiar with the investments and regional stakeholders and entrepreneurship experts with deep experience both in the region and with entrepreneurship development – key informants. Common themes identified were that ARC investments:

- Raised the profile of entrepreneurship as a development strategy, helping to change the mindset within the region
- Represented “but for” money in the region, providing start-up funding for innovative projects
- Leveraged additional resources that helped some projects achieve scale and impact
- Facilitated networking and collaboration among practitioners
- Helped to change people's attitudes, particularly among youth and their teachers.

There were also a number of lessons gleaned from the many interviews conducted across the region, some of which will benefit those who are actively engaged in implementing entrepreneurship programs – the practitioners – and others which will guide future programs either of ARC or agencies across the country pursuing similar efforts. For the practitioners, the lessons were of three kinds:

-
- Lessons for Program Leadership
 - Successful entrepreneurship initiatives had sparkplugs or local champions that provided leadership for these efforts.
 - Local capacity was a key to success.
 - Lessons for Program Management
 - Program self-sufficiency (sustainability) and success went hand in hand.
 - Entrepreneurship development was recognized to be a long-term process.
 - Successful projects altered their goals and approaches as conditions warranted.
 - Lessons for Program Outreach
 - Partnerships and collaborations were important to success.
 - Successful projects celebrated and shared the story of their success.

For program designers and implementers, again the lessons were of three kinds:

- Lessons for Program Design
 - Practitioners and entrepreneurs have unique local knowledge that can be applied to program design and subsequent program refinements.
 - Successful initiatives brought together related investments, in this case, other regional economic development or entrepreneurship-related investments.
- Lessons for Program Implementation
 - Getting EI funds to local partners was dependent upon state leaders, such as governors and program managers, and varied based on the importance assigned to the initiative.
 - The size of ARC grants placed limits on regional impacts.
- Lessons for Program Impacts
 - Building a broader base of support for entrepreneurship investments requires continued efforts to “make the case” to local leaders.
 - Programs can be improved by embracing long-term and locally-driven evaluation of program outcomes and impacts.

Finally, the evaluation team offered three sets of recommendations to ARC. Regarding investments in entrepreneurship development:

-
- Entrepreneurship development initiatives should include assessment of existing capacity and capacity-building activities as part of the project design.
 - Entrepreneurship development initiatives should be made with a focus on the long term.
 - Entrepreneurship development initiatives receiving investments should be market-driven and practice continuous improvement.
 - Emphasis should be placed on investing in initiatives that demonstrate the ability to form regional partnerships and collaborations.

The second set of recommendations is for creating a “best in class” metrics system:

- “Job creation” is an overused metric, paints an incomplete picture of the outcomes of entrepreneurship development investments, and should be replaced by an “entrepreneurship development metrics portfolio.” In addition to jobs created/retained and new business starts, this system should include outcome measures such as:
 - Change in business profitability (performance) following a capital investment
 - Number of youth considering business creation as a career option after participation in an education program
 - Percent of incubator tenants who graduate and remain in the region
 - Change in total sector sales over time as a result of investment to encourage sector development
 - Number of customers still in business after receiving technical assistance
 - Positive change in perceived community support for entrepreneurship as measured by community pre- and post-surveys.
- A “best in class” metrics system requires investment in a “best in class” evaluation system.

The third set of recommendations focus on program design and management:

- ARC’s initiative process should be regularized so that state program managers can more effectively plan for and promote the use of the resources.
- ARC’s proven experience can be applied to developing and delivering effective, region-wide education programs that help make the case for entrepreneurship as a core economic development strategy for the Appalachian region.
- To build on the momentum created by the EI, ARC should create a *Next Generation Entrepreneurship Innovation Initiative* that will be groundbreaking in its design. A long-term investment is recommended

that incorporates all the learning from the EI and the emerging entrepreneurship development field.

Table of Contents

	<u>PAGE</u>
CHAPTER 1 INTRODUCTION	1
CHAPTER 2 REVIEW OF THE ENTREPRENEURSHIP DEVELOPMENT FIELD	5
CHAPTER 3 CONCEPTUAL FRAMEWORK AND REVIEW OF THE LITERATURE	14
CHAPTER 4 APPROACH TO THE EVALUATION	31
CHAPTER 5 THE WIDER REGIONAL ECONOMY – ENTREPRENEURSHIP TRENDS IN APPALACHIA	44
CHAPTER 6 ARC INVESTMENT PORTFOLIO – PROJECT IMPLEMENTATION AND REPORTED METRICS	58
CHAPTER 7 SAMPLE PROJECT OUTCOMES AND BROADER POLICY IMPACTS	75
CHAPTER 8 LESSONS LEARNED FROM THE ARC ENTREPRENEURSHIP INITIATIVE EXPERIENCE	88
CHAPTER 9 CONCLUSIONS AND RECOMMENDATIONS	106
BIBLIOGRAPHY	118
APPENDIX A LITERATURE REVIEW	130
APPENDIX B NON-PROJECT STAKEHOLDER INTERVIEWS	159
APPENDIX C PROTOCOL FOR PROJECT LEADERS	160
APPENDIX D PROTOCOL FOR NON-PROJECT STAKEHOLDERS	167

CHAPTER 1 INTRODUCTION

In 1997, the Appalachian Regional Commission (ARC) began a multi-year initiative to invest in projects designed to build entrepreneurial economies across the region – the Entrepreneurship Initiative (EI). Since that time, ARC has invested almost \$43 million (composed of EI funds and dollars from other ARC accounts) in various entrepreneurship development projects. Over 10 years, these projects have created jobs and businesses, supported partnerships and collaborations, and helped leaders at the community and state levels recognize the value of entrepreneurship as an economic development strategy. While ARC has collected select data to describe the outcomes of these investments, these data do not begin to tell the story about the extent to which and how the EI has had an impact on the region. This evaluation was designed to provide a more detailed and nuanced description of the impact of the EI, both in terms of the outcomes achieved by the portfolio of projects and the broader policy impacts across the region. This evaluation, however, must first be placed within the context of the initiative's history.

HISTORY OF THE PROGRAM

The EI emerged in 1997 as a special initiative under the leadership of then-Federal Co-Chairman Jesse White. White had long pushed for economic development strategies focused more on home-grown business development as opposed to business recruitment and attraction. As he told a Federal Reserve Bank of Kansas City symposium in 2000, "[W]e've got to re-instill in rural America the idea, particularly in Appalachia and the Rural South, that job creation, business creation, and, most importantly, wealth creation, occurs as a result of local indigenous business creation."¹ The EI was designed as a test of public policy approaches that sought to achieve this objective.

The genesis for the EI was in the belief that entrepreneurial activity could be encouraged through strategic investments in education, business assistance, and capacity building projects. Areas for strategic investment identified prior to the launch of the EI included:

- Access to capital and financial assistance
- Technical and managerial assistance
- Technology transfer
- Entrepreneurial education and training
- Entrepreneurial networks.

¹ Jesse White, "Overview Panel Comments," Proceedings of Federal Reserve Bank of Kansas City Conference on Beyond Agriculture: New Policies for Rural America (April 2000):193.

The EI was originally funded with \$15 million over three years, with additional investments being provided beyond this original total. Through 2000, ARC had invested \$17.6 million in 169 projects.² Through 2003, ARC had invested \$31.4 million in 368 projects. An additional amount of approximately \$11 million was invested in subsequent years through the EI or via the use of Area Development funds. Table 1.1 shows ARC investment in entrepreneurship-related activities by source of funds for the period of this evaluation. While all ARC investments in entrepreneurship were not specifically drawn from EI funds, the rationale for making these investments was clearly driven by the goals associated with the EI. Today, ARC continues to fund entrepreneurship development-related projects under the Asset-Based Development Initiative launched in 2005, although the EI is no longer operating as a stand alone initiative. The Asset-Based Development Initiative is building on the foundation laid by the EI, leveraging the new businesses and additional capacity created by EI investments.

Table 1.1 ARC Funds Invested in Entrepreneurship-Related Projects, 1997-2005, by Source of Funds

Source of funds	\$ invested
Entrepreneurship Initiative	26,546,366
Area Development	6,698,724
Commission's EI	3,206,803
Distressed Counties	3,052,109
CoChair Fund	2,432,440
Regional Initiatives	868,673
Goal Fund	114,000
New Markets Fund	52,574
TOTAL	42,971,688

ORGANIZATION OF THE EI

ARC's special initiatives are traditionally designed to support innovative local projects and also to serve as a demonstration of new regional development strategies and approaches. ARC officials were very explicit about the importance of the EI as a means to demonstrate the viability of entrepreneurship as an economic development strategy. Interviewed experts also emphasized this aspect of the EI.

The EI's organization reflects this dual focus on educating local leaders and on maximizing the effect of local project investments. In pursuing its wider educational goals, ARC recognized the need to form partnerships and engage other institutions in order to achieve sustainable impacts in the region. Through the formation of four advisory committees with significant private sector

² For an early review of these investments, see Regional Technology Strategies, Inc., Evaluation of the Early Stages of the Appalachian Regional Commission's Entrepreneurship Initiative, A Report to the Appalachian Regional Commission, December 2001.

participation, ARC was able to tap into national expertise and “best practices” to guide the initiative. Each advisory committee was charged with providing input to ARC in a particular program area – entrepreneurship education, technical assistance, capital access, and sectorally targeted strategies. In particular, these advisory committees helped to organize a region-wide educational effort that augmented the specific project investments made by ARC. Elements of this educational effort included, for example:

- Scholarships to the 16th Annual Entrepreneurship Education Forum and support for three regional entrepreneurship conferences; creation of the Springboard Youth Entrepreneurship Education Awards; creation of the Entrepreneurship Everywhere web-based resource guide³
- Support for conferences on sector-based development; a competitive grant program for “strategic sectoral interventions” in the region
- Sponsorship of a workshop on community development venture capital; follow-up regional workshops on equity capital in rural communities; publications on developmental venture capital in the region; creation of an opportunity fund to leverage private investment using the New Markets Tax Credit program
- Funding for four workshops on business incubation “best practices” in the region; a survey on business incubators in Appalachia; creation of a business incubation mentor program.

These region-wide educational efforts were, for the most part, funded outside the EI, using other ARC dollars, such as Commission or CoChair funds. While using distinct funding sources, these projects also contributed to the mission of the EI – to encourage the development of an entrepreneurial economy in the region. In fact, it is not possible to separate the impact of broader ARC investments in entrepreneurship from those specifically identified with the EI. Most of ARC’s investments through the EI resulted in project-specific outcomes; the outcomes of their educational efforts were much broader, serving to raise the overall level of regional awareness about specific aspects of entrepreneurship development – education, sector approaches, capital and incubation. The impacts, in most cases, were not confined to particular communities or even states. Instead, the impacts could be measured in terms of increased understanding of several aspects of entrepreneurship development and enhanced capacity to design and implement entrepreneurship activities within the region.

While this evaluation did not seek to quantify ARC’s capacity building and education impacts related to entrepreneurship development, this effect was cited in nearly all of the interviews with outside experts and state level officials. During interviews, the evaluation team regularly heard comments such as the EI “opened people’s eyes to other possibilities” or “the program got people talking about entrepreneurship.” Several other programs, such as the New Markets

³ Available at <<http://www.entre-ed.org/arc/home1.htm>>.

Venture Capital program, built on momentum generated by the EI. In fact, two of the first six New Markets Venture Capital companies operate in Appalachia.

While the EI's impact in terms of building better awareness of entrepreneurship cannot be quantified, it should be included in any full accounting of the EI's outcomes. The EI was designed as a demonstration, i.e., to test new policy models and to encourage Appalachian communities to focus within on nurturing home-grown businesses. Today, nearly all of the Appalachian states are involved in some form of organized efforts to promote entrepreneurial development. While the ARC cannot claim sole credit for this shift in thinking, based on feedback from key stakeholders it is clear that the EI played a role in convincing policy makers that supporting entrepreneurs is good economic development policy.

STRUCTURE OF THIS REPORT

This report presents the findings from an evaluation of ARC's investments in entrepreneurship development from 1997 through 2005. Based on analysis of data collected by ARC, in-depth research into the impacts associated with a sample of ARC-funded projects, and interviews with a broad range of stakeholders, this evaluation provides key insights into the value of the EI to the region. Chapter 2 provides an overview of entrepreneurship development, particularly in terms of the state of the field in 1997, the beginning of the EI. This context is important for understanding how innovative ARC was in launching the EI, plowing new ground in terms of economic development. Chapter 3 lays out the conceptual framework developed to guide this evaluation process and reviews relevant evaluation literature related to entrepreneurship development. This review of the literature served as the basis for developing the metrics framework that would guide in-depth evaluation of sample projects. Chapter 4 describes this metrics framework and the overall research approach used in this study.

Chapter 5 describes key aspects of the Appalachian region's business and economic environment that created the context for the EI. It is this context that created the need for and gave rise to the projects that became part of the EI portfolio. Changes over the ten year time horizon of the EI are also presented. Chapters 6 and 7 provide the key findings from this evaluation. Chapter 6 describes the types of projects in which ARC invested and presents data on key metrics collected by ARC for all projects. Chapter 7 provides a detailed discussion of the impacts, quantitative and qualitative, associated with the sample of projects considered for this evaluation. Chapter 8 presents the lessons learned from the EI experience for both practitioners of entrepreneurship development and policy makers who may be considering similar types of investment programs in the future. Finally, Chapter 9 provides recommendations, based on evaluation findings, for the field and for ARC going forward.

CHAPTER 2

REVIEW OF THE ENTREPRENEURSHIP DEVELOPMENT FIELD

While entrepreneurship has always been a feature of the American (and Appalachian) landscape, the history of explicit public support for regional entrepreneurial development is quite brief. Indeed, ARC's Entrepreneurship Initiative serves as one of the first such large-scale efforts, and the absolute first such effort investing Federal dollars in regional entrepreneurship strategies.

At the time of the Entrepreneurship Initiative's unveiling in 1997, ARC's leadership had grown increasingly concerned about Appalachia's future vitality. The region was especially hard hit by cutbacks in declining sectors such as timber, textiles, tobacco, and was seeking new approaches to jump start development. Entrepreneurship-focused economic development strategies were viewed by ARC as ". . . a critical element in the establishment of self-sustaining communities that create jobs, build local wealth, and contribute broadly to economic and community development."⁴

By investing in the Entrepreneurship Initiative in 1997, the ARC was something of an "early adopter." Up to that stage, economic developers had focused almost exclusively on industrial recruitment as a core strategy. The industrial restructuring of the 1970s and the 1980s had stimulated some interest in business retention and technology development strategies, but entrepreneurial development strategies represented something of a "new thing" in 1997.⁵

Nevertheless, ARC was not promoting entrepreneurship without some evidence that it would make a significant contribution to economic opportunity in Appalachia. In the late 1980s, Eisinger discussed the limited returns to traditional economic development activities and suggested a more important role for entrepreneurial, growth from within, economic development strategies.⁶ There was some research that questioned the efficacy of traditional "smokestack chasing" and some that provided insights into the impact of specific programs such as business incubation, youth entrepreneurship, and targeted technical assistance. What was missing at that time was the evidence to link entrepreneurship to regional and community development, and to identify which policy interventions, and in what combination, would lead to increased entrepreneurial activity. Over the past decade, there has been rapidly growing interest among researchers and policy analysts in entrepreneurship as a core

⁴ Appalachian Regional Commission, Entrepreneurship Initiative: Program Summary and Approved Projects, September 2003, 9 August 2007
<<http://www.arc.gov/index.do?nodeId=1970>>.

⁵ For background, see Erik R. Pages, Doris Freedman, and Patrick Von Bargen, "Entrepreneurship as a State and Local Economic Development Strategy," The Emergence of Entrepreneurship Policy: Governance, Start-Ups and Growth in the U.S. Knowledge Economy, Ed. David Hart, Cambridge, MA: Cambridge University Press, 2003.

⁶ Peter K. Eisinger, The Rise of the Entrepreneurial State: State and Local Economic Development Policy in the United States, Madison, WI: University of Wisconsin Press, 1988.

economic development strategy, and more evidence has been found to support this approach. It was important to the evaluation to understand the implications of this expanded understanding in order to appropriately assess the value and impact of the EI investment.

This chapter provides a brief overview of research, policy and practice that addresses two primary questions:

- What makes a region (or community) entrepreneurial?
- What policy or community interventions, if any, can help support entrepreneurial development?

WHAT MAKES A REGION ENTREPRENEURIAL?

Researchers have examined a host of both macroeconomic and microeconomic factors that help explain the innovation or entrepreneurial capacities of a region. At the broadest level, recent research has reviewed how leading demographic trends are correlated with new firm births. For example, in a 1994 review article, Reynolds, Storey and Westhead describe key factors that are associated with higher levels of new firm starts.⁷ These include net population growth, increases in personal or household income or regional gross product, high population density, high educational levels among population, and a high percentage of population between the ages of 25 and 44. Acs and Armington similarly find that higher relative education levels strongly affect new firm formation rates, especially among service businesses.⁸ These same factors have been highlighted in the cross-national research studies conducted under the auspices of the Global Entrepreneurship Monitor (GEM) research consortium.⁹

While this literature contains something of a consensus about several key factors (e.g., population growth, higher education levels) that are correlated with higher new firm formation rates, some researchers caution that the causal chain still remains unclear. For example, Feldman notes that many key factors associated with entrepreneurship, such as the presence of local venture capital firms, may actually lag instead of lead entrepreneurial growth.¹⁰ In other words, these

⁷ Paul Reynolds, D.J. Storey, and P. Westhead. "Crossnational Comparisons of the Variation in New Firm Formation Rates, *Regional Studies* 28.4 (1994):443-456.

⁸ Zoltan Acs and Catherine Armington, "Using Census BITS to Explore, Entrepreneurship, Geography, and Economic Growth," Research Summary No. 248, Small Business Administration Office of Advocacy, February 2005. Similar findings that emphasize the importance of local educational levels as well as local employment growth and productivity rates can be found in Advanced Research Technologies, "The Innovation-Entrepreneurship NEXUS," Research Summary No. 256, Small Business Administration Office of Advocacy, April 2005.

⁹ Begun in 1999, the Global Entrepreneurship Monitor project is a cross-national effort to assess national rates of entrepreneurship. Begun with ten countries, the research program now tracks entrepreneurial activity in forty-two countries. The project's research reports can be accessed at <www.gemconsortium.org>.

¹⁰ Maryann Feldman, "The Entrepreneurial Event Revisited: Firm Formation in a Regional Context," *Industrial and Corporate Change* 10.4 (2001):861-891.

regional assets emerge as a result of strong local entrepreneurial activity. They are a by-product, as opposed to a trigger, for high firm formation rates. Feldman concludes by cautioning that each region's entrepreneurial development activities generally emerge from a unique and idiosyncratic mix of historical factors, local resources, and business conditions.

PUBLIC POLICY AND ENTREPRENEURSHIP

While many economists and researchers continue to assess how various demographic and macroeconomic factors help drive regional entrepreneurial activity, policy makers, including the ARC's leadership, are more concerned with questions of how (and whether) policy interventions can affect a region's entrepreneurial propensities and development patterns. A large and growing literature examines this issue,¹¹ and much of this work has helped guide the strategic direction of ARC's own Entrepreneurship Initiative.

While individual analysts may differ on the relative importance of certain regional factors, there is relatively strong consensus that five factors are especially important:

- Access to Capital
- Enabling Culture
- Local Networks
- Supportive Infrastructure
- Supportive Government Policies.

A more detailed description of each factor and the public policy approaches used to address them is provided below.

Access to Capital

Successful entrepreneurial regions tend to enjoy a wide range of options for financing businesses at different stages of the business life cycle. Successful regions host a variety of financial institutions that can provide businesses with a range of both equity and debt financing options. Rural communities may be especially challenged on this front. Recent US Department of Agriculture-sponsored research has found that rural areas tend to have fewer lenders and less diverse markets. While rural areas do have less bank competition, the study found few rural-urban differences between the cost and availability of debt

¹¹ For an excellent comprehensive literature review, see Jill S. Taylor, "What Makes a Region Entrepreneurial? A Review of the Literature," Monograph, Cleveland State University, Center for Economic Development, September 2006. Other good sources include Brian Dabson, et al., Mapping Rural Entrepreneurship, Washington, D.C.: CFED, August 2003; Deborah Markley, Don Macke and Vicki Luther, Energizing Entrepreneurs: Charting a Course for Rural Communities, Lincoln, NE: Heartland Center for Leadership Development, 2005, and OECD, Entrepreneurship and Local Economic Development, Paris: OECD, 2003.

financing.¹² In fact, a recent study of capital access in the Appalachian region found that banks in the region had higher small business loan to deposit ratios as compared to national figures.¹³

However, businesses in rural regions experience capital access problems when their needs fall outside the type of loans traditionally made by banks – e.g., microloans (to fund very small enterprises with limited collateral) and equity finance. Microenterprise development was just emerging in the early to mid-1990s. A recent study of the industry noted that only about one-quarter of microenterprise programs listed in a 2001 directory existed before 1991.¹⁴ The importance of providing both training and microfinancing to entrepreneurs was just being viewed as a development strategy as ARC invested in the EI.

Appalachia also suffers in terms of access to equity finance. For example, a 2000 ARC study found that only 1/3 of 1% of all venture capital (\$117 million) was invested in rural regions of Appalachia.¹⁵ A more recent study of capital access in the Appalachian region shows improved access to equity capital.¹⁶ Through 2004, the study shows that ARC had invested in 11 funds in seven states and these funds collectively had invested \$13.6 million in regional businesses. If all of this investment is considered new to the region, it represents a 12% increase in equity capital as compared to that found in 2000. However, the later study also identified a need to continue to expand the capacity of community development financial institutions in the region by broadening sources of funds, increasing self-sufficiency, and expanding products available to businesses.

As a result of these market gaps, policy makers in Appalachia and elsewhere have supported a host of initiatives to develop new sources of microcredit and equity and equity-like capital.¹⁷ Within the region, ARC funded microenterprise development initiatives and revolving loan funds, as well as others that created a venture capital industry. At the Federal level, these initiatives include the Small Business Administration's (SBA) Microenterprise Loan and PRIME (Program for

¹² Ray Collender, et al., "Financial Markets Serve Rural Areas Fairly Well," Rural Development Perspectives 14.1 (May 1999):28-35.

¹³ National Community Reinvestment Coalition, Access to Capital and Credit for Small Businesses in Appalachia, Washington, D.C.: National Community Reinvestment Coalition, April 2007.

¹⁴ Elaine L. Edgcomb and Joyce A. Klein, Opening Doors, Building Ownership: Fulfilling the Promise of Microenterprise in the United States, Washington, D.C.: FIELD, A Program of the Aspen Institute, 2005 <<http://www.fieldus.org/Publications/FulfillingthePromise.pdf>> 28 January 2008.

¹⁵ Appalachian Regional Commission, Capitalizing on Rural Communities, Washington, DC: Appalachian Regional Commission, 2000, 8.

¹⁶ National Community Reinvestment Coalition, April 2007.

¹⁷ Deborah Markley, et al. Rural Equity Capital Initiative Study of Nontraditional Venture Capital Institutions, RUPRI PB2001-11A-D, 2001, <<http://www.energizingentrepreneurs.org/content/cr.php?id=4&sel=2>>. An excellent summary of these efforts can be found in a special issue of the Federal Reserve Bank of San Francisco's Community Development Review 3.2 (2006).

Investment in Micro-Entrepreneurs) programs, the Small Business Investment Company (SBIC) program, the New Markets Tax Credit initiative, the CDFI Fund, and other efforts. State and local initiatives have been more far-reaching and comprehensive, including Nebraska's Microenterprise Partnership Fund, the Oklahoma Center for the Advancement of Science and Technology (OCAST) and the Pappajohn Entrepreneurship Center at North Iowa Area Community College (NIACC). Nebraska provides state support for microenterprise development through a public-private partnership that channels investment to microenterprise development programs across the state through a competitive process. OCAST has developed a comprehensive set of financing tools for technology businesses in the state that includes pre-seed financing of up to \$100,000 for tech start-up companies, a seed capital program with equity investments up to \$750,000, and a number of technical assistance and sector-specific programs.¹⁸ NIACC's capital programs are designed to work hand-in-hand with technical assistance and education programs available at the community college. Capital programs include a revolving loan fund providing debt capital, a nanoloan program providing debt capital for microenterprises, and access to both formal venture capital and angel investors.¹⁹ Finally, private programs, such as the creation of local angel investor networks, are also being introduced across the US. Angel investor groups have grown from 50 formal groups in 1997 to an estimated 170 formal and informal groups in 2002,²⁰ there were an estimated 200,000 individual angel investors active in 2002 and 234,000 in 2006.²¹

Enabling Culture

The need for an "enabling culture" is widely recognized in the literature, but the details of what constitutes such a culture are expressed in different ways by researchers and practitioners. At the most basic level, an enabling culture is one that understands, recognizes, and honors the importance of local entrepreneurs. These three terms – understanding, recognizing, and honoring – also connote three different sets of potential policy interventions.

¹⁸ More information is available about OCAST on their website, <<http://www.ocast.state.ok.us/>>.

¹⁹ More information about NIACC can be found on their website, <<http://www.niacc.edu/pappajohn/>> and in Deborah Markley and Karen Dabson, Innovative Approaches to Entrepreneurial Development: Cases from the Northwest Region, RUPRI Center for Rural Entrepreneurship, 2006, 32-41.

²⁰ "Business Angel Investing Groups Growing in North America," Ewing Marion Kauffman Foundation, October 2002, 4 December 2007

<http://www.angelcapitaleducation.org/dir_downloads/resources/BestPractices_Summit1.pdf>;

²¹ "Full Year 2002 Angel Market Analysis Report," Center for Venture Research, Whittemore School of Business and Economics, University of New Hampshire, 4 December 2007 <<http://wsbe2.unh.edu/files/Center%20for%20Venture%20Research%20Press%20Release%20June%202003%20-%20The%20Angel%20Investor%20Market%20in%202002.pdf>>; Full Year 2006 Angel Market Analysis Report," Center for Venture Research, Whittemore School of Business and Economics, University of New Hampshire, 4 December 2007 <<http://wsbe2.unh.edu/files/Full%20Year%202006%20Analysis%20Report%20-%20March%202007.pdf>>.

To promote understanding, analysts recommend the introduction of entrepreneurship education to all parts of the population. The introduction of entrepreneurship education at the college and university level has been a resounding success. In 1979, only 127 schools offered courses in small business and entrepreneurship. Today, more than 1600 schools offer this training.²² Community colleges have also witnessed major growth in entrepreneurship training. The introduction of entrepreneurship education at the primary and secondary school levels has been less smooth, but innovative programs and curricula are widely available across the US.²³

To promote recognition, analysts have advocated for several ideas, including more active entrepreneur involvement in the policy-making process. Given the time demands of running a business, few entrepreneurs have stepped up to this challenge. However, several states have created advisory bodies, such as New York's Small Business Advisory Board, to provide opportunities for this input. The creation of regional business plan competitions is another widely used tool that helps publicize local entrepreneurs. These competitions exist across the US, with a scale that can range from major national/international competitions to smaller local efforts focused on youth or specific market segments. Several of the ARC's Entrepreneurship Initiative grants funded efforts of this sort.

To honor entrepreneurs, many analysts recommend the creation of awards programs such as local Entrepreneur of the Year Awards.²⁴ ARC's own Springboard Awards, designed to honor innovations by entrepreneurship educators, was a particularly effective design for a regional awards program.

These education and recognition efforts are critical to improving the local climate for entrepreneurs, but existing cultural attitudes also come into play. Extensive research indicates that cultural factors play an important role in explaining differing entrepreneurship rates across countries and even within countries. For example, Giannetti and Simonov find that the presence of local entrepreneurial role models helps explain differences in regional entrepreneurship rates.²⁵ A recent US study also stresses the importance of role models.²⁶ Research sponsored by the Global Entrepreneurship Monitor project notes that differences

²² Jerome Katz, And Another Thing..., "2006 Coleman Foundation White Paper on Entrepreneurship Education, 2006 Annual Meeting of US Association of Small Business and Entrepreneurship, January 13, 2006, 9 August 2007
<<http://www.usasbe.org/knowledge/whitepapers/Katz%20White%20Paper-Final.pdf>>.

²³ For background, see National Governors Association, A Governor's Guide to Strengthening State Entrepreneurship Policy, Washington, DC: National Governors Association, 2004.

²⁴ National Governors Association, 2004.

²⁵ Mariassunta Gianetti and Andrei Simonov, On the Determinants of Entrepreneurial Activity: Individual Characteristics, Economic Environment, and Social Norms, White Paper, Stockholm School of Economics, June 2004, 9 August 2007,
<http://papers.ssrn.com/sol3/papers.cfm?abstract_id=554511#PaperDownload>.

²⁶ Edward J. Malecki, "Geographical Environments for Entrepreneurship," International Journal of Entrepreneurship and Small Business, Forthcoming 2008.

in cross-national entrepreneurship rates are influenced by local cultural attitudes toward risk-taking and fear of failure.²⁷ Like many rural regions, some Appalachian communities perform poorly on various measures of cultural attitudes toward entrepreneurship. Indeed, the ARC's own materials note that "the culture of entrepreneurship is neither wide nor deep throughout Appalachia."²⁸

From the perspective of ARC's Entrepreneurship Initiative, recognition of the importance of an enabling culture is reflected in the number of program investments that can be described as "community capacity building" – facilitating visioning, leadership development, asset-mapping and community engagement activities intended to make the community more supportive of and attractive to entrepreneurs. In many cases, initial ARC investments were designed to build capacity for supporting entrepreneurs, with follow on investments supporting program implementation. These capacity building investments were designed, in essence, to enhance community social capital. An extensive literature measuring the importance of social capital for economic development, and the impact of enhanced social capital on community development outcomes, has been developed by researchers, particularly Cornelia Flora.²⁹

Local Networks

Networks refer to local locations (both virtual and physical locations) where entrepreneurs can gain access to peers and others with expertise or knowledge about the processes of starting and growing a business. Entrepreneurs regularly report that such networks are a critical component in helping them learn the ins and outs of business and gain easier access to needed support services.³⁰ Such networks are commonplace in major urban areas, especially in technology hot spots such as Silicon Valley or Boston. They are less commonly found in rural areas as they typically depend on a critical mass of local business owners with an interest in networking. Because these dense concentrations of business owners and service providers do not exist in many rural regions, networking opportunities are often lacking.

²⁷ See, for example, Maria Minniti with William Bygrave and Erko Autio, Global Entrepreneurship Monitor 2005 Executive Report,

<http://www.gemconsortium.org/about.aspx?page=global_reports_2005>.

²⁸ Appalachian Regional Commission, Entrepreneurship Initiative: Program Summary and Approved Projects, September 2003, 9 August 2007

<<http://www.arc.gov/index.do?nodeId=1970>>.

²⁹ See for example, Mary Emery and Cornelia Flora, "Spiraling Up: Mapping Community Transformation with Community Capitals Framework," Journal of the Community Development Society 37.1 (Spring 2006):19-35.

³⁰ See, for example, Erik R. Pages and Shari Garmise, "The Power of Entrepreneurial Networks," The Economic Development Journal 2.3 (Summer 2003):20-30. For a local example of network building efforts, see North Carolina Rural Economic Development Center, Hello, My Business Name is ...: A Guide to Building Entrepreneurial Networks in North Carolina, Raleigh, NC: North Carolina Rural Economic Development Center, 2007.

Many regional organizations – both public and private – have jumped in to help seed new networks. By providing staff support and limited funding, economic developers hope to jump start local networks that can then operate on their own. The networks can operate in a manner that is open to all entrepreneurs, such as a regional network, or they can focus on the issues and challenges facing a specific industry sector or cluster, such as ceramics and related industries.

Supportive Infrastructure

Entrepreneurs are no different from other kinds of business owners in their need for a supportive and reliable physical infrastructure including transportation, water and sewer. Building such infrastructure has been a traditional focus of ARC, through its highway program and other investments. More recently, ARC's broadband initiative has invested in providing critical IT-related infrastructure for the region's businesses.

ARC-sponsored research clearly indicates the powerful impacts of investments in traditional infrastructure such as highways, water and sewer facilities, and industrial parks.³¹ Investments in broadband infrastructure can also have beneficial economic development impacts. Research from Minnesota indicates that the presence of high speed Internet access was a major factor in explaining the presence of local gazelle (fast-growing) businesses in regions across the state.³² Other research indicates that communities with extensive broadband access outperform comparable regions without such amenities in terms of job growth and the number of businesses.³³

Supportive Government Policies

While entrepreneurs may succeed anywhere, they are more likely to flourish in a region where government and community leaders are "entrepreneur-friendly." This can take two forms:

- The creation and nurturing of a supportive tax and regulatory climate
- The provision of a wide range of private and publicly-funded business services, including technical assistance, incubators, and other forms of specialized support.

³¹ The Brandow Company and Economic Development Research Group, Evaluation of the Appalachian Regional Commission's Infrastructure and Public Works Program Projects, Washington, D.C.: Appalachian Regional Commission, 2000.

³² Thu-Mai Ho-Kim and Ernesto Venegas, "Starting Up Economic Engines: Key Factors for Growing Successful Start-Ups," Minnesota Department of Employment and Economic Development Issue Brief, October 2003.

³³ Sharon E. Gillett, et al, Measuring the Economic Impact of Broadband Deployment, Washington, D.C.: Economic Development Administration, February 28, 2006.

An early study by the National Commission on Entrepreneurship documented federal policy in support of entrepreneurship from 1958-1998.³⁴ Since that time, much of the policy innovation surrounding entrepreneurship has occurred at the state level. For example, in 2004, the Kansas legislature passed a comprehensive package of legislative support for entrepreneurship development including the creation of an entrepreneurship center and implementation of a tax credit program to spur investment in new ventures.³⁵ As the focus has shifted from federal to state policy in recent years, the impact analysis of these policies remains to be done.

THE STATE OF THE FIELD AND THE EI

Much of the research and policy innovation described above has happened in the years since ARC's EI was launched. For example, the Global Entrepreneurship Monitor project was initiated first in 1999 with only 10 countries; GEM 2007 research is being conducted in 42 countries. Most state innovations have occurred since 2000. ARC was clearly leading the way in encouraging the practice of entrepreneurship as an economic development strategy. As such, ARC investments were designed to demonstrate the potential associated with a wide range of strategies, from youth education to venture capital development. Given that the entrepreneurship development field was in its early innovation stage, such an approach, referred to by one stakeholder as "let a thousand flowers bloom," was strategic in its design and appropriate for the time.

³⁴ National Commission on Entrepreneurship, American Formula For Growth, Washington, D.C.: National Commission on Entrepreneurship, October 2002.

³⁵ The Kansas Economic Growth Act of 2004 established the Kansas Center for Entrepreneurship and introduced several capital initiatives including StartUp Kansas – a seed capital fund, authorization for regional foundations, and angel networks. A review of other state efforts can be found in National Governors Association, 2004.

CHAPTER 3 CONCEPTUAL FRAMEWORK AND REVIEW OF THE LITERATURE

Given the breadth and diversity of investment activity undertaken by ARC as part of the EI, the evaluation team began by reviewing the actual operating realities of the initiative. The ARC set general guidelines for programs, but each state responded to these guidelines in a unique manner. Similarly, each project was quite unique. It is easy to understand that a grant for high school entrepreneurship summer camps will have different metrics than those of a revolving loan fund. Yet, great diversity also existed within single program categories. For example, investments in business incubation might fund a feasibility study, build a new incubator, or provide technical assistance to new sets of customers. As will be seen in Chapter 4, building a set of consensus metrics for such a diverse set of program interventions proved quite challenging.

At the outset of the EI, ARC convened four advisory committees charged with identifying best practices and key insights into four areas ARC had identified as critical for building an entrepreneurial region – access to capital, entrepreneurship education, technical assistance, and sectoral strategies. As an outgrowth of the work undertaken by these committees, ARC eventually identified five strategic areas for investment - access to capital and financial assistance, technical and managerial assistance, technology transfer, entrepreneurial education and training, and entrepreneurial networks. However, after an initial review of the portfolio of projects receiving ARC investments from 1997-2005, the evaluation team identified five program categories that captured the actual range of projects implemented:

- **Capital Access** – provision of services and technical assistance to connect entrepreneurs and businesses to appropriate levels and types of debt and equity capital
- **Entrepreneurship Education** – structured experiential opportunities in and out of school for young people (K-16) to learn entrepreneurial skills and attributes and to understand business basics with the aim of encouraging young people to consider entrepreneurship as a career sooner or later
- **Incubators** – provision of opportunities for acquiring information, skills, resources within (often subsidized) workspace settings
- **Technical Assistance and Training** – provision of expert and/or peer one-on-one mentoring and consulting services on technical and managerial matters and provision of information and skills in formal classroom or laboratory settings to adult entrepreneurs
- **Sectors** – packaging of some combination of training, incubating, technical assistance, and capital access services targeted at a single, specific business sector.

Another category, **Community Capacity**, facilitating visioning, leadership development, asset-mapping and community engagement activities intended to make the community more supportive of and attractive to entrepreneurs, was also identified. This category actually cuts across the other programmatic areas as initial ARC investments were often designed to build capacity for supporting entrepreneurs, with follow on investments supporting program implementation.

The program categories defined by the evaluation team differ somewhat from the five strategic areas originally defined by the Appalachian Regional Commission. After reviewing actual investments made by the EI, the team determined that investments had not been made in the technology transfer area, while actual investments in entrepreneurial networks were more accurately described as investments in either sector-specific activities or incubation activities, such as investment in Virginia’s sustainable wood products industry or Ohio’s food sector. As an example, ARC’s investments in commercial kitchen incubators, while focused on a specific sector, were coded as incubators. Table 3.1 lists ARC’s strategic areas and describes how and why they were modified and repackaged into the five program categories used as the basis for this evaluation. All of these changes were made after a review of the actual projects in which ARC invested and represent the adaptation of the ARC investment process to the needs of communities as reflected by their proposed project activities.

Table 3.1: Comparison of ARC Strategic Areas and Evaluation Program Categories

ARC Strategic Areas	Comments
Access to capital and financial assistance	Capital Access – no change
Technical and managerial assistance	Split into Technical Assistance and Training and Incubators to reflect different modes of entrepreneurial support
Technology transfer	Not implemented
Entrepreneurial education and training	Split between Entrepreneurship Education for youth and Training (in Technical Assistance) for adults
Entrepreneurial networks	Actually implemented as Sector or Incubator initiatives
	Community Capacity – added to capture the place-based and cultural dimensions of the initiative; a category that cuts across program categories and strategic areas

DEVELOPMENT OF A CONCEPTUAL FRAMEWORK

The origins of the Appalachian Regional Commission’s Entrepreneurship Initiative were rooted in the challenge for states and communities throughout the region – a challenge that is shared across rural America – of how to foster the economic and cultural conditions that give birth to entrepreneurs, support innovation, and assist in the development and expansion of successful enterprises. These desired outcomes were, and still are, considered critical to

Appalachia's future economic vitality. Moreover, they were seen as essential to reducing the region's dependence upon extractive industries and branch plant manufacturing, to replacing the long-term practice of asset-stripping with asset accumulation and value-addition, and to creating a more entrepreneurial and outward-looking culture.

Given these expectations, the evaluation team chose to approach its charge by establishing at the outset a conceptual framework that required a sharp focus on the essence of the initiative and reduced the temptation to explore interesting but tangential avenues that would perhaps make the evaluation richer but less useful as a guide to future policy and action. Three fundamental goals were identified which best reflect the primary purposes of the EI. While the following goals were not articulated specifically by ARC, they reflect the mission and purpose of the EI as understood through ARC publications and interviews with key leaders:

- **More entrepreneurs** – To increase the number of entrepreneurs establishing businesses in Appalachia
- **Stronger entrepreneurs** – To increase the survival rate of entrepreneurial ventures in Appalachia
- **More high growth entrepreneurs** – To increase the proportion of entrepreneurial ventures that achieve rapid growth rates, thus providing jobs and wealth within and increasing the competitiveness of Appalachia.

These fundamental goals then were operationalized by the evaluation team into six programmatic goals:

- **More entrepreneurs in the pipeline** – increasing the number of people, youth and adults, who are actively considering setting up their own businesses
- **More entrepreneurs staying** – creating the conditions in which entrepreneurs wish to stay and grow their businesses in their community
- **Better informed entrepreneurs** – providing entrepreneurs with the information and tools they need to establish and grow their businesses
- **Better skilled entrepreneurs** – providing entrepreneurs with the technical and managerial skills they need to sustain and grow their businesses
- **More job creating businesses** – providing the tools and resources to encourage entrepreneurs to expand and employ others
- **Greater business productivity** – providing the tools and resources to enable entrepreneurs to operate efficient and competitive businesses.

While this conceptual framework proved useful as an organizing framework for the evaluation, the team needed to align this framework with the stated goals and operational practice of the EI. The program categories that grew out of the evaluation team's review of ARC's investment portfolio map well onto the set of programmatic goals articulated in the conceptual model. Each category was identified as contributing to the attainment of at least one of these programmatic

goals. Table 3.2 shows how the program categories and programmatic goals intersect. It is certainly possible to argue for additional Xs in this table. Indeed, one might argue that all project types could have a long-term impact on every programmatic goal. However, we have chosen to focus on the primary goal(s) of each program type. For example, while entrepreneurship education programs ideally, in the long run, lead to more youth creating businesses and/or staying in the region, the primary goal of these educational efforts is to expose young people to entrepreneurial concepts and possibilities, with the ultimate goal of having more youth pursue entrepreneurship as a career path, leading to more entrepreneurs in the pipeline.

The conceptual framework developed to provide context for the ARC Entrepreneurship Initiative and to ground the evaluation was also used to inform the review of the literature related to entrepreneurship development.

REVIEW OF THE LITERATURE

Entrepreneurship and efforts to promote entrepreneurship as an economic development strategy have emerged as important topics for both research and policy discussion. The literature is vast and seems to be growing larger every day. The majority of this research focuses on questions directly related to entrepreneurs and their companies by examining questions such as appropriate business development strategies, the qualities of successful entrepreneurs, or the role of various management practices in producing business success or failure. Very few studies address the measurement of program impacts or community outcomes. This section presents a review of both current trends in economic development performance measurement and of the limited evaluation literature.

Evaluation Research by Program Category and Objective

The following sections summarize recent research and thinking about performance measurement in the five ARC program evaluation categories: Capital Access, Sectors, Entrepreneurship Education, Business Incubation, and Technical Assistance and Training. Appendix A contains a more complete review of the literature. As Table 3.2 indicates, each of the five program categories seeks to achieve multiple goals. Yet, many of the efforts can be categorized according to a predominant objective. For example, entrepreneurship education, with its heavy emphasis on youth empowerment, is most concerned with the objective of creating more entrepreneurs. Meanwhile, capital access programs, especially those equity programs emphasized by the ARC, are largely focused on creating more high-growth entrepreneurs.

Table 3.2: Intersection of Program Categories and Programmatic Goals

	Capital Access	Entrepreneurial Education	Incubators	Sectors	Technical Assistance and Training	Community Capacity
More entrepreneurs in pipeline		X			X	X
More entrepreneurs staying	X		X	X		X
Better informed entrepreneurs			X	X	X	X
Better skilled entrepreneurs			X	X	X	X
More job creating businesses	X			X	X	X
Greater business productivity	X		X	X	X	X

Creating More Entrepreneurs

Within ARC's program categories, entrepreneurship education is most concerned with feeding the pipeline with new entrepreneurs – exposing youth to entrepreneurship as a potential career path and to entrepreneurial ways of thinking that can be applied to working for oneself or for someone else. An ultimate or long-term goal is to have these new entrepreneurs create new enterprises that remain in the region and produce jobs and wealth.

Entrepreneurship Education. Evaluations of entrepreneurship education efforts vary across different levels of the educational system. For programs targeting youth, a host of different evaluation methodologies have been deployed. In general, most of these measures stress student performance and outcomes as opposed to community outcomes. The programs operate on an implicit assumption that by empowering and providing skills to young people (especially at-risk youth), positive community outcomes will emerge over the long-term.

Studies of youth entrepreneurship programs indicate that these efforts have a strong impact on program participants. While some programs, including ARC-funded efforts, provide training for primary school students, most existing programs targeted middle and high school students. Studies sponsored by the National Foundation for Teaching Entrepreneurship (NFTE) find that NFTE program participants had more interest in attending college and had more ambitious career aspirations.³⁶ A study of the EnterprisePrep curriculum used in Philadelphia found that program participants had lower drop out rates and improved performance in science, math and English. Studies of the Junior Achievement curriculum identify similar positive outcomes in terms of youth attitudes toward entrepreneurship.³⁷

Evaluations of entrepreneurship training at the college and graduate level place more emphasis on outcomes in terms of new business formation. A detailed study of the University of Arizona's Berger Entrepreneurship program found that program graduates were three times more likely to start a business than their student counterparts. Program graduates also enjoyed higher average incomes.³⁸ A whole host of other studies provide similar results.³⁹

³⁶ Michael Nakkula, Expanded Explorations into the Psychology of Entrepreneurship: Findings from the 2001-2002 Study of NFTE in two Boston Public High Schools, Working Paper, Harvard University Graduate School of Education, 2003.

³⁷ Junior Achievement, The Impact on Students of Participation in Junior Achievement: Selected Cumulative and Longitudinal Findings, Monograph, January 26, 2004.

³⁸ Alberta Charney and Gary Libecap, The Impact of Entrepreneurship Education: An Evaluation of the Berger Entrepreneurship Program at the University of Arizona, 1985-1999, Final Report to the Kauffman Center for Entrepreneurial Leadership, 2000.

³⁹ Lena Lee, Entrepreneurship Education: A Compendium of Related Issues, Working Paper, NUS Entrepreneurship Centre, National University of Singapore, 2005.

In general, entrepreneurship education programs are not expected to provide direct community impacts in terms of new job or wealth creation. Instead, they help produce intermediate outcomes, which may then translate into positive economic development outcomes. Analysts contend that entrepreneurship education efforts change attitudes toward entrepreneurship, increase awareness of key business concepts, and build necessary skills for starting and operating a business. These claims are generally confirmed in surveys of participants in major programs. These attitudinal and skill changes may lead to new business starts, which are then expected to generate positive community outcomes.

Based on this logic chain, most entrepreneurship education programs emphasize program output and student performance measures. While most programs do track new business starts by students, they place greater emphasis on more short-term measures of student performance and attitudinal change. In contrast, many technical assistance programs, such as trainings sponsored by Small Business Development Center programs, are evaluated according to their capacity to generate new business starts.

Creating Stronger Entrepreneurs

Three of the ARC's program interventions – technical assistance and training, business incubation, and sectors/networks – were primarily concerned with supporting the mission of stronger entrepreneurs, i.e. to increase the survival rate of local entrepreneurial ventures. These three initiatives operate according to similar rationales. They seek to create more skilled and better informed entrepreneurs through the provision of:

- New information (via trainings and workshops)
- Access to mentors and peer support (via networks)
- Access to subsidized facilities or equipment (via incubators)
- Access to potential new markets (via networks or training).

The research literature for each of the program categories emphasizes different evaluation methodologies, but they all share some common characteristics. First, they seek to assess general customer satisfaction with the provided assistance. Second, they seek to assess whether this support led to improved knowledge or skills for the entrepreneur. Finally, they seek to assess whether this new knowledge has led to changes in behavior; specifically, has the intervention led to improved performance by the company or its management team?

Technical and Managerial Assistance. Since business incubators often provide technical and managerial assistance as part of their program operations, incubators and technical assistance often use similar measurement tools and methodologies. Efforts to track and measure the effects of business assistance programs have been underway for a long time. Many Federal programs, such as

the Small Business Development Center program and the Manufacturing Extension Partnerships, have invested significant resources into evaluation efforts.

Most technical assistance evaluations begin with calculations of traditional economic development impacts such as job creation or the leveraging of outside investments. As noted earlier, many state-level programs have become quite sophisticated in their evaluation efforts. For example, Pennsylvania's Ben Franklin Technology Partners (BFTP) tracks its customers by company size and sector; they also compare their client companies to state averages in terms of average wages. This latter metric offers a useful measure of job quality. BFTP tracks the public return on investment and impact on state gross product via calculations of job creation, new investment, and newly generated tax revenues.⁴⁰ BFTP is also one of the few programs to utilize a control group methodology in its assessments. This costly but effective method compares the performance of program clients to comparable firms who did not utilize BFTP services. This comparison indicates that BFTP-supported firms employed three more people in each year after the program investment.

In addition to basic measures of job creation and customer satisfaction, the Oklahoma Center for the Advancement of Science and Technology (OCAST) tracks outside research investments, Small Business Innovation Research (SBIR) funds per capita (compared to national benchmarks), and company financing by stage. OCAST's partner, I2E, utilizes some other specialized measures such as growth in number of companies positioned for financing, creation of commercialization road maps for customers, and a host of activity measures, such as creation of new partnerships, number of events, and so on. Both OCAST and I2E also provide breakouts (via pie charts) of customers by industrial sector and by region.⁴¹

The Maine Technology Institute (MTI) utilizes university researchers to assess its program operations and the impact of its grants.⁴² The MTI's performance has been tracked using four categories of measures: economic impact, effects on company finances, intellectual property development, and relationships. Within these categories, several unique measures are used. These include sources of material and service inputs (used to assess in-state purchasing) and relationships. This latter measure tracks usage of other service providers, such as SBDCs, and measures related to customer satisfaction and impact.

⁴⁰ Nexus Associates, [A Continuing Record of Achievement: The Economic Impact of the Ben Franklin Technology Partners](#), Final Report, March 2003.

⁴¹ Oklahoma Center for the Advancement of Science and Technology, [Impact Report 2006](#) (Oklahoma City, Oklahoma: OCAST, January 2006) 10 November 2006 <<http://www.ocast.state.ok.us/Portals/0/docs/brochures/2006-ImpactReport.pdf>>.

⁴² Charles S. Colgan and Bruce Andrews, [Evaluation of Maine Technology Institute Programs](#), University of Southern Maine Center for Business and Economic Research, December 2004, 10 November 2006, <<http://www.usm.maine.edu/cber/activities/MTI%20Final%20Report%202004.pdf>>.

Business Incubation. Because business incubation has been a core economic development strategy for several decades, both practitioners and analysts have developed an array of metrics and tools for measuring the effectiveness of business incubation programs. The National Business Incubation Association (NBIA) has led many of these efforts and was an important ARC partner during this initiative. In addition, ARC has funded incubator programs throughout its existence and has funded several useful studies of the field.⁴³

Most studies of business incubation provide reviews of best practices that typically cover the details of program management and facility operations.⁴⁴ Many of these reports also include suggestions for assessing the impact of business incubation programs. Lichtenstein and Lyons place a heavy emphasis on effective evaluations that capture both process and outcome measures.⁴⁵ Most analysts recommend that traditional economic development metrics, such as job creation, be supplemented with other measures that capture unique aspects of the business incubation process. For example, most business incubators regularly track graduated companies, i.e., firms that have moved from subsidized incubator space to owning or leasing space at market rates. Customer satisfaction surveys are also frequently used. Business performance measures – both during and after residence in the incubator – also offer useful data on an incubator’s regional impacts. For example, a firm’s post-graduation ability to continue growth, to access outside financing, and to enter new markets are all important measures of community economic impacts from business incubation.

Sectors/Networks. Economic developers’ thinking about sector/network strategies has undergone an interesting evolution over the past twenty years. Beginning in the 1980s and 1990s, a number of fledgling programs sought to stimulate the development of sector-based networks in industries such as wood products and manufacturing. Much of this initial work was based on successful experiments in Denmark and Italy, with overseas lessons applied to US experience. Several of the first such US-based programs were located in Appalachia. The North Carolina Rural Economic Development Center supported a networks initiative in Western North Carolina, and ACEnet sponsored a similar effort in Appalachian Ohio.

⁴³ For example, Greenwood Consulting Group, [A Survey of Business Incubators in Appalachia](http://www.arc.gov/images/programs/entrep/survey2005.pdf) (Washington, DC: ARC, July 2005) 10 November 2006
<<http://www.arc.gov/images/programs/entrep/survey2005.pdf>>.

⁴⁴ See, for example, Louis G. Tornatzky et al., [Incubating Technology Businesses: A National Benchmarking Study](#) (Athens, Ohio: National Business Incubation Association, 2003).

⁴⁵ Gregg A. Lichtenstein and Thomas S. Lyons, [Incubating New Enterprises: A Guide to Successful Practice](#) (Washington, DC: Aspen Institute, 1996).

These initial network building efforts remained limited to networks based on an industrial cluster or sector.⁴⁶ More recently, policy makers have sought to support the creation of broader entrepreneurial networks that include participants from a variety of sectors and disciplines. ARC has invested in both types of networks via the Entrepreneurship Initiative. For example, the Team Pennsylvania Foundation sought to use ARC funds to stimulate the creation of several regional entrepreneurship networks across the state. Other ARC investments sought to build sector-based networks in ceramics (New York), arts (Ohio), and aquaculture (Georgia).

While the operations of cluster-based and entrepreneurial networks may differ slightly, both types are evaluated using a similar methodology. Evaluators regularly seek hard quantitative data on the impact of networks, but qualitative measures are also necessary as much of the network impact is qualitative. Relationship building, trust, and increased knowledge are all important outcomes of network activities. In general, research strongly indicates that more networked firms tend to perform better than firms with weak networks and limited strategic alliances.⁴⁷

Networks are typically evaluated using customer surveys, interviews, and case studies.⁴⁸ Typical qualitative outcomes would be high rates of customer satisfaction, better awareness of resources and networks, and more openness toward collaboration. Quantitative measures examine the network's ability to help produce changes in business outcomes, such as entry into new markets, revenue growth, job creation, and the ability to access outside financing.

As networking becomes a more important part of a typical economic development portfolio, analysts are searching for new tools that can better assess the role of business support providers as network builders. Social network analysis seeks to map and evaluate the power of networking activities. In the 1980s and 1990s, researchers sought to simply count the number of outside alliances and assess their strength. Today, new software tools allow users to map social networks and assess them according to their diversity, strength, and influence. These maps can be used to diagnose network

⁴⁶ For background, see Stuart A. Rosenfeld, "Networks and Clusters: The Yin and Yang of Rural Development," Proceedings of Federal Reserve Bank of Kansas City Conference on Exploring Policy Options for a New Rural America, (September 2001):103-120.

⁴⁷ An excellent review of this literature can be found in Luke Pittaway, Maxine Robertson, Kamal Munir, and David Denyer, Networking and Innovation: A Systematic Review of the Evidence, University of Lancaster Institute for Entrepreneurship and Enterprise Development, Working Paper 016, 2004, 10 November 2006 <www.lums.lancs.ac.uk>. See also Christopher T. Street and Ann-Frances Cameron, "External Relationships and Small Business: A Review of Small Business Alliance and Network Research," Journal of Small Business Management 45.2 (2007):239-266.

⁴⁸ For example, see Peter Witt, "Entrepreneurs' Networks and the Success of Start-Ups," Entrepreneurship and Regional Development 16 (2004):391-412; Philip Shapira, The Evaluation of USNet: Overview of Methods, Results and Implications – Final Report, Georgia Tech Policy Project on Industrial Modernization Working Paper 9805, 1998.

weaknesses and design interventions to strengthen the network and the quality of company network ties.⁴⁹ Social network analysis has also been used as a means to better describe and understand company and industry supply chains.

Creating More High-Growth Entrepreneurs

While all program interventions share the goal of creating high-growth entrepreneurs, very few of the Entrepreneurship Initiative's grantees focused exclusively on this objective. However, a number of grant recipients in the capital category did embrace a mission of supporting gazelle businesses. Because its metrics rely on quantifiable financial measures, evaluations of capital access programs tend to be much more rigorous than other types of entrepreneurship-related policy interventions.

Capital. ARC's capital projects tend to fall into two broad categories – support for microenterprise initiatives and investments in more specialized types of financial assistance, such as specialized loan funds or new sources of equity capital. Many of these investment vehicles promote what they refer to as a “double bottom line.” In other words, the funds seek to build strong businesses but also promote other social goals, such as community development or environmental sustainability. In addition, microenterprise programs measure progress along two fronts – traditional business outcomes and measures that capture the empowerment of individual clients. These latter metrics could include movement off of welfare, increases in family income, and length of self-employment periods.

Since ARC's Entrepreneurship Initiative investments have focused on regional economic development, this literature review is concerned primarily with how to measure the economic impacts of investments in capital programs. Since the EI first began in 1997, capacity to measure these impacts has greatly improved. At that time, policy makers had very limited experience in creating and operating publicly-sponsored seed or equity capital programs. And, many early programs were shut down due to political controversies.⁵⁰

The intervening decade has been one of great experimentation and innovation in the development of new capital access initiatives and associated evaluation tools. Since 1997, the New Markets Venture Capital Program, the Community Development Financial Institutions program, and revisions to the Small Business Investment Company (SBIC) program have all been put into place. In addition, several new trade associations, including the Community Development Venture Capital Association (CDVCA), the National Association of Seed and Venture

⁴⁹ For example, see <www.networkweaving.com>.

⁵⁰ An example is Mississippi's Magnolia Fund which operated for only 2 ½ years before being closed due to misappropriation of funds. David L. Barkley, et al., Establishing Nontraditional Venture Capital Institutions: Lessons Learned, Rural Equity Capital Initiative Study of Nontraditional Venture Capital Institutions, RUPRI PB2001-11A, 2001, <http://www.energizingentrepreneurs.org/content/cr_2/2_000026.pdf>.

Funds, and the Angel Capital Association, have all been established to help professionalize the field.

Meanwhile, more established disciplines, like microenterprise and community development corporations, have become much more rigorous in strengthening professional development programs and creating common performance measurement systems. In the microenterprise field, the Aspen Institute's FIELD (Microenterprise Fund for Innovation, Effectiveness, Learning and Dissemination) program has played a critical role in collecting, developing and disseminating new program ideas and new performance measures and tools.⁵¹ Its MicroTest program provides a useful framework for assessing both program performance and client outcomes. Similar comprehensive efforts are underway at leading organizations in the field. These include the CDFI Data Project, the Opportunity Finance Network's CDFI Assessment and Rating System (CARS), and the CDVCA's Return on Investment Project.⁵²

All of these efforts, and other outside analysis, reach a similar conclusion – publicly-sponsored investment programs need to be managed and measured just like private investments. While programs may pursue multiple goals, the programs must be managed and assessed on their capacity to make good business decisions. As a 2000 National Governor's Association guide put it, "The best programs are not afraid to make money."⁵³ This same study noted: "In the best cases, state leaders take the initiative in getting programs launched and setting long-term direction. They rely on experienced, private-sector managers to make the day-to-day investment decisions."⁵⁴

As seed and equity capital programs have moved in this direction, issues of performance measurement have become more straightforward. At the most basic level, most funds should be expected to produce a reasonable rate of return. A reasonable rate will differ depending on the types of companies in a fund's portfolio. For example, institutional venture capital funds have averaged a 20.3% annual return over the past ten years, but only a 1% return over the past five years. A 2002 study of venture capital rates of return in five countries identified average rates of return that fell anywhere between 26% and 45%.⁵⁵ Meanwhile, the CDVCA estimates that its members have enjoyed an average

⁵¹ An excellent review of effects of microenterprise programs can be found in Signe-Mary McKernan and Henry Chen, Small Business and Microenterprise as an Opportunity and Asset-Building Strategy, Urban Institute Issue Brief No. 3, June 2005.

⁵² Community Development Venture Capital Association, Measuring Impacts Toolkit (New York: Community Development Venture Capital Alliance, 2005).

⁵³ Robert Heard and John Sibert, Growing New Businesses with Seed and Venture Capital: State Experiences and Options (Washington, DC: National Governors Association, 2000) 18.

⁵⁴ Heard and Sibert, 17.

⁵⁵ Sophie Manigart, et al, "Determinants of Required Return in Venture Capital Investments: A Five Country Study," Journal of Business Venturing 16.6 (July 2002):291-312.

annual return of 15.5% over a twenty-five year period.⁵⁶ Programs that invest in microenterprises or slower growth businesses should be expected to post rates of return much lower than these benchmarks.

In addition to rates of return, funds can also be assessed in terms of program outputs and economic development outcomes. Program outputs refer directly to the activities of the fund or its related programs. They are activity measures that track data such as the number and amount of loans, average loan size or number/amount of financing provided to certain target customer sets.

Outcome measures seek to assess a fund's business and community impacts. In this case, most analysts recognize that many traditional economic development metrics do a good job of measuring community outcomes. Thus, most studies continue to recommend tracking job creation and retention, business performance of portfolio companies, and the leveraging of outside investments.

IMPLICATIONS FOR PERFORMANCE MEASUREMENT

The conceptual framework presented above seeks to portray entrepreneurial development as an array of programs that serve entrepreneurs at various points in the lifecycle of their business. This "pipeline" model of entrepreneurial development, first described by Lichtenstein and Lyons,⁵⁷ recommends multiple policy interventions that help achieve the three broad purposes of creating more entrepreneurs, stronger entrepreneurs, and more high-growth entrepreneurs.

In practice, few program managers have the scope to manage programs that cover the whole pipeline of entrepreneurial development. Instead, they typically manage a single program or a single type of policy intervention, such as training or business financing. This restricted span of control over business outcomes makes it difficult for individual programs to introduce more sophisticated tools for measuring program performance.

In the field, entrepreneurship program managers are beginning to consider alternative performance measurement systems, but they still feel pressured by funders and elected officials to utilize traditional measures of job and firm creation outcomes.⁵⁸ By using traditional economic development metrics to

⁵⁶ Amy Simpkins, "Community Development Venture Capital: Producing Results for Entrepreneurs, Investors, and Communities," *Bridges* Summer 2006, 10 November 2006 <<http://stlouisfed.org/publications/br/2006/b/pages/1-article.html>>.

⁵⁷ Gregg A. Lichtenstein and Thomas S. Lyons, "The Entrepreneurial Development System: Transforming Business Talent and Community Economies," *Economic Development Quarterly* 15.1 (2001):3-20.

⁵⁸ Laura Czohara and Julia Melkers, *Performance Measurement in State Economic Development Agencies: Lessons and Next Steps for GDITT*, Georgia State University Fiscal Research Center Report No. 92, February 2004. See also, Erik R. Pages and Kenneth A. Poole, "Entrepreneurship Promotion as an Economic Development Strategy: Next Steps in

assess entrepreneurial and innovation-based development, program managers are employing inappropriate performance measures. Building businesses takes patience and resilience. It is unrealistic to expect quick results in terms of traditional economic development outcomes. Program managers need a more thoughtful approach to tracking the performance of their efforts. Moreover, new measures for entrepreneurial development need to be devised that recognize a stream of benefits over an extended period of time. Measuring entrepreneurial development using annual job creation impacts alone is like measuring the success of a loan program solely by the ability of the borrower to repay on a monthly basis. Short-term job creation is simply not the purpose of these programs.

In their quest to “tell a better story,” program managers are considering a host of other metrics, which tend to fall into the following categories:

- Activity/Output Measures (e.g., number of customers served)
- Customer Satisfaction Surveys
- Input Measures (e.g., increase in budget)
- Outcome Measures (e.g., increase in business starts)
- Cost Efficiency (e.g., return on investment).

While some programs use a full range of measures, most economic developers, including ARC grant recipients, use a more limited menu of metrics that is generally limited to job creation and retention and the leveraging of outside investments. These limited metrics can provide a much skewed picture of the impact of entrepreneurial development efforts.

Economic development programs have responded to this challenge in a number of ways. The metrics used by Small Business Development Centers (SBDCs) offer one model. For example, the North Carolina Small Business and Technology Development Centers track outside financing (loans, equity, and SBIR/Small Business Technology Transfer Program funds), state and federal contract awards, customer satisfaction, job creation, firm sales growth, and incremental taxes generated.⁵⁹ Florida combines capital formation, business start-ups, jobs created/retained, sales growth, and contract awards to calculate the return on investment (ROI) for its SBDC system.⁶⁰ A slightly more sophisticated set of metrics is used by various statewide technology development organizations such as Pennsylvania’s Ben Franklin Partners, the Oklahoma Center for the Advancement of Science and Technology, and the Maine Technology Institute.

Institutionalizing the Field,” Applied Research in Economic Development 3.2 (December 2006):.10-27.

⁵⁹ North Carolina Small Business and Technology Development Center, 2005 Annual Report, <http://www.sbtcd.org/pdf/annual_report.pdf>.

⁶⁰ See <www.floridasbdc.com>.

Useful benchmarks for metrics can also be found in the work of various trade associations working in the fields of microenterprise and community development. These groups are seeking to develop industry-wide metrics that can help improve management practices and provide industry benchmarks for effective practice.

Local groups are also experimenting with new methods. For example, Maine's Coastal Enterprises, Inc. has developed a very rigorous and comprehensive set of program measures.⁶¹ Its Social Information System combines a host of measures that provide internal feedback to management and employees, permit assessment of program outcomes, and also generate data and case studies that can be communicated to an outside audience.

These varied initiatives seek similar types of information on client companies. They ask for information on firm growth, performance, and local economic impact. In keeping with their social missions, the organizations also tend to track information on employee benefits, wages, and community and environmental impacts.

At the federal level, the US Department of Agriculture's Rural Business-Cooperative Services (RBS) is implementing a Socio-Economic Benefits Assessment System (SEBAS) developed at the University of Missouri-Columbia.⁶² SEBAS provides a means of evaluating performance and effectiveness of RBS' loan and grant programs by measuring the economic and social impacts that these have on rural community environments. Using a multi-regional social accounting matrix model, SEBAS is able to measure both direct and indirect effects of the loans and grants, such as business sales, income, indirect business taxes, employment, household income, public revenues, and distribution of household income and occupations.

Finally, many organizations are seeking new ways to measure "innovation impacts." This work remains relevant to the existing literature on entrepreneurship as many entrepreneurial development programs seek to stimulate innovation-related outcomes, such as improved productivity rates, wider diffusion of new technologies, and improvements in human capital.⁶³ The US Department of Commerce has created a new "Measuring Innovation in the 21st Century Economy Advisory Committee." Commerce's Manufacturing Extension Partnerships and the Advanced Technology Program have probably faced the most rigorous scrutiny of any publicly-funded technology program in the country. The National Institutes of Standards and Technology (NIST) have a

⁶¹ Coastal Enterprises, Inc., Measuring Impact in Practice (Wiscasset, ME: Coastal Enterprises Inc., February 2006).

⁶² Robinson, Dennis and Zuoming Liu, A User Guide to the Socio-Economic Benefits Assessment System: A Rural Business-Cooperative Services Assessment Tool for Economic Development. Community Policy Analysis Center, University of Missouri-Columbia, December 2004.

⁶³ B.K. Atrostic, "Measuring U.S. Innovative Activity," US Census Bureau Center for Economic Studies Working Paper (07-11), March 2007.

huge library of resources on this work.⁶⁴ Studies of the MEP have generally used industry surveys to assess whether client firms have introduced new processes (such as Total Quality Management or a reconfigured plant layout) as a result of MEP's technical assistance.⁶⁵

Overseas, the European Union, the OECD, and many national and regional programs are developing interesting new ways to measure progress in innovation policy. They have also made major efforts to go beyond studies and to get practitioners to use these tools in the field. For example, the OECD has produced the very detailed Oslo Manual for collecting and interpreting innovation data. The European Union has its own PAXIS Manual that profiles hundreds of effective measurement tools and practices. Many national governments are also doing good work in this area. Britain's Department of Trade and Industry has recently published a useful study of UK innovation indicators.⁶⁶ These efforts all share a commitment to regular comprehensive performance measurements that capture both program outputs as well as community outcomes.

These efforts generally propose the use of detailed company surveys to capture data on a wider range of variables related to innovation. In addition to traditional measures such as new patents or licenses, the new survey tools ask questions about education backgrounds of new hires and existing personnel, development of new R&D projects, joint ventures, training expenditures, and the deployment of "high-impact" human resource practices (e.g., equity sharing, team building).

The UK study captures some interesting innovation information via firm surveys.⁶⁷ These data are organized around three categories, with several sub-measures under each category:

- Product-Orientated Effects: increased range of goods or services; entry into new markets; improved quality of goods and services
- Process-Orientated Effects: improved flexibility of production or service provision; increased capacity for production or service provision; reduced unit costs
- Other Effects: reduced environmental impact or improved health/safety; met regulatory requirements; improved value added.

⁶⁴ These reports are available at <http://www.atp.nist.gov/eao/eao_pubs.htm>.

⁶⁵ See, for example, Eric Oldsman, "Do Manufacturing Extension Programs Matter?" Research Policy 25.2 (March 1996):215-232.

⁶⁶ European Commission, Directorate General, Enterprise and Industry, The PAXIS Manual for Innovation Policy Makers and Practitioners (Brussels: European Commission, 2006); Organization for Economic Cooperation and Development, Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data Third Edition (Paris: Organization for Economic Cooperation and Development, 2005); United Kingdom Department of Trade and Industry, Innovation in the UK: Indicators and Insights, DTI Occasional Paper No. 6, July 2006.

⁶⁷ United Kingdom Department of Trade and Industry (2006).

These surveys also ask companies to comment on innovation constraints they face in their region or industry. These data help program managers anticipate future needs or service requirements.

Drawing on this review of literature and insights into performance measurement gained, the evaluation team developed a metrics framework to guide the evaluation, particularly the data collection for the sample of ARC projects. Chapter 4 describes the metrics framework and the overall approach to the evaluation.

CHAPTER 4 APPROACH TO THE EVALUATION

In designing the approach to this evaluation, the team was conscious of the charge articulated by ARC in the Request for Proposals for the evaluation. ARC was seeking a “policy impact and program evaluation”⁶⁸ of the Entrepreneurship Initiative that would include:

- An examination of the project outcomes of a sample of projects closed since 1997
- An assessment of wider policy impacts informed by input from stakeholders within the region.

Through its Entrepreneurship Initiative, the ARC has invested in a diverse set of projects in a diverse set of communities. Thus, a “one-size-fits-all” approach would not produce an effective and comprehensive evaluation. The evaluation team’s approach to this project was to combine a detailed and rigorous review of a sample set of projects with extensive interviews of key players on the project teams and in the targeted communities. This approach provided us with a strong set of collective program metrics as well as rich detailed case-study-like information on key projects and their outcomes.

The ideal evaluation would measure project outcomes relative to the sample programs’ ultimate goals.⁶⁹ The ARC evaluation is complicated by the fact that individual projects (those receiving ARC investments) had a set of specific goals each was trying to achieve, i.e., “local” impacts, such as increasing access to equity capital or incorporating entrepreneurship education into high school classrooms. In addition, through investments made in the totality of EI projects, ARC was trying to provide communities with the tools they needed to support homegrown entrepreneurs because they “play an important role in creating self-sustaining local economies and improving the quality of life in Appalachia”⁷⁰ – a broader set of regional impacts. While “local” and regional impacts were complementary in most cases, individual projects were evaluated based on their ability to achieve locally articulated goals and not these broader regional impacts. To distinguish between these two levels of impact, the evaluation team chose to couple an assessment of sample projects’ outcomes, as measured by data reported by project leaders, with identification of wider policy impacts as reported

⁶⁸ Request for Proposals for A Program Evaluation of ARC’s Entrepreneurship Initiative, Appalachian Regional Commission, July 28, 2006.

⁶⁹ David J. Storey, Six Steps to Heaven: Evaluating the Impact of Public Policies to Support Small Businesses in Developed Economies, Working paper No. 59, Small and Medium Sized Enterprise Centre, Warwick Business School, University of Warwick, September 1998, 3 December 2007 <http://www2.warwick.ac.uk/fac/soc/wbs/research/csme/research/working_papers/wp59-six_steps.pdf>.

⁷⁰ Appalachian Regional Commission, Entrepreneurship Initiative, 9 August 2006 <<http://www.arc.gov/index.do?nodeId=19#toc>>.

by key informants – both project leaders and regional stakeholders. A list of non-project stakeholders is included as Appendix B.

Program outcomes for the EI investments can be measured in two ways. One is to compare the levels of outcome measures *before and after* the ARC investment. To be accurate, one must be sure that the metric or outcome measure would not have changed without the ARC-funded program (i.e., the “but for” criterion). Alternatively, one could conduct a *with and without* comparison, estimating what the outcome would be without ARC investment and comparing this measure to the outcome with ARC investment. To be accurate using this strategy, one would need to employ a control group of communities, identical in every way to the communities that housed an ARC-funded program. While employing a control group may make sense when looking at firm-level impacts of public policy, as suggested by Storey, it is more difficult to consider identifying control groups for public policies aimed at bringing about changes in firms, students, educators and even communities. As a result, the *with and without* approach was deemed impractical for this evaluation as it would require identifying at least 88 “control” places – some individual communities, some multi-county regions, some multi-state regions – and collecting comparable data through interviews and secondary data.

Given the scope of the evaluation as articulated by ARC, this latter approach was not used in this evaluation. While neither approach is without criticism (see caveats at the end of this chapter), the evaluation team chose the *before and after* strategy and relied on those administering the programs and respondents to stakeholder interviews to indicate if the “but for” criterion was satisfied.

RESEARCH QUESTIONS

A number of research questions guided this evaluation effort.

- Have sample projects achieved their stated project objectives?
- How does the performance of ARC projects compare to the performance of similar types of projects in other regions or countries?
- How well do existing performance metrics capture the impact of ARC projects and what additional metrics would improve the usefulness and integrity of evaluation results?
- What broader policy impacts are associated with ARC project investments?
- What innovative practices or lessons learned have relevance for other national and international economic development efforts?

ARC’s Entrepreneurship Initiative is unique in that investments have been made in a diverse project portfolio, varying widely by geography, program type (i.e., access to capital, technical assistance and training, incubators, entrepreneurship education, and sectors), type of lead institution and identified output and outcome

measures. As such, no single performance measurement or metric would adequately capture the impact of ARC entrepreneurship investments on the region. For example, the performance measures associated with a youth entrepreneurship education project are likely to vary significantly from those associated with a community development venture capital project. The evaluation methodology recognized this uniqueness and created a rigorous and broad set of project metrics that would demonstrate the impact of a wide range of project types on the region.

METRICS FRAMEWORK

The review of the literature on the state of the art in evaluating entrepreneurial development programs yields one important conclusion: the field has a long way to go in terms of creating rigorous, compelling, and effective techniques and strategies for evaluating programs and communicating their effectiveness to policy makers and community stakeholders. Indeed, much of the literature reflects what Storey would describe as “monitoring” as opposed to rigorous evaluation of performance as compared to the objectives established for a program or investment.⁷¹ Drawing on the lessons from this review and based on the conceptual framework developed to guide the evaluation process (described in Chapter 3), performance measures were defined for each of the program categories that, as far as is practical from the available data, reflect the appropriate programmatic goals. The evaluation team developed a list of metrics that captures key outputs and outcomes for each of the five program categories. This framework is depicted in Table 4.1.

The development of this metrics framework was guided by the literature review and a critical discussion of the need to link outcomes to program goals. For example, while the literature on entrepreneurship education offers a range of metrics related to student outcomes (e.g., higher test scores), the evaluation team chose to focus on those metrics that relate directly to the programmatic goals of the ARC Entrepreneurship Initiative – in the case of entrepreneurship education, the goal is to create more entrepreneurs in the pipeline.

These metrics allow researchers to obtain a good picture of the progress of the various projects funded through the ARC’s Entrepreneurship Initiative. They allow an understanding of the impacts of each program type, and also help identify exemplary practices and programs. They do not yet give a good picture of the overall effects of varied entrepreneurship initiatives across a specific region. Achieving this objective requires that researchers assess programs operated by numerous different organizations (many outside of ARC’s purview) across all types of policy interventions along the business life cycle. This important effort, which falls outside scope of this evaluation, presents an interesting challenge for future research.

⁷¹ Storey (1998):12.

TABLE 4.1. PROPOSED METRICS FRAMEWORK

TYPE OF PROJECT	OUTPUT INDICATORS	OUTCOME INDICATORS
Capital Access	<ul style="list-style-type: none"> ▪ Number of loans/year ▪ Amount (\$)/year ▪ Number of funds created ▪ Fund size (\$) ▪ Average loan size ▪ Percent sectoral distribution of loans (\$) 	<ul style="list-style-type: none"> ▪ Amount (\$) funds leveraged (public, private or other) ▪ Number of jobs (FTEs) created/retained ▪ Percent of funded firms still in business ▪ Annual income and benefits/job or average wage/job
Sectors	<ul style="list-style-type: none"> ▪ Number of participants in networking meetings ▪ Number of members (change over time) 	<ul style="list-style-type: none"> ▪ Increase in inter-firm collaborations ▪ Number of partnerships created ▪ Amount (\$) of increased sales from network participation ▪ Number of jobs (FTEs) created/retained ▪ Change in total sector sales ▪ Number of business starts in targeted sector
Incubators	<ul style="list-style-type: none"> ▪ Number of current clients ▪ Number of clients served ▪ Number of graduated firms ▪ Number of clients still in business ▪ Amount (\$) leveraged by incubator (other public/private money) 	<ul style="list-style-type: none"> ▪ % businesses retained in service area ▪ # of jobs (FTEs) created/retained while in incubator ▪ # of jobs (FTEs) created/retained post-graduation ▪ Amount (\$) of capital raised by tenants
Entrepreneurship Education	<ul style="list-style-type: none"> ▪ Number of participants enrolled in the program ▪ % of local schools offering (pre and post investment) ▪ % of participants completing the program 	<ul style="list-style-type: none"> ▪ Increase in awareness of business concepts (pre vs. post) ▪ Increase in number of participants considering business creation as a career option (pre vs. post) ▪ Change in student performance before and after program ▪ Number of students starting businesses ▪ Number of students that stay within the service area
Technical Assistance And Training	<ul style="list-style-type: none"> ▪ Number of business starts ▪ Number of business expansions ▪ Number of clients 	<ul style="list-style-type: none"> ▪ Number of clients still in business ▪ Number of jobs (FTEs) created/retained ▪ Private \$ raised by client firm ▪ Annual income and benefits/job or average wage/job

Jobs (FTE) = wage earners and proprietors

While this broad set of performance metrics provided a useful framework for the evaluation, a “best in class” metrics system as proposed later in this report would require refinement of this list down to those outcome measures that best capture the impacts of entrepreneurship development investments across a range of project types. Recommendations in Chapter 9 include the identification of a set of outcome measures that could result in an operationalized “best in class” metrics system to guide future investments by ARC.

DATA COLLECTION

To gather the data identified in the metrics framework, the evaluation team used a four-part approach:

1. Data for each sample project were gathered from the ARC project file – the program category, funding level, goals (or need addressed), and how the program was implemented.
2. Additional data on project performance were gathered through phone interviews with project directors – outcomes produced (both quantitative and qualitative), value attributed to the project, success in achieving objectives.
3. Data on broader capacity and policy impacts were gathered through phone interviews with both project and non-project stakeholders – policy impacts in the region, other qualitative and quantitative impacts on capacity in the region.
4. Data on place-based and broad policy impacts were gathered through selected site visits in geographic areas where investments in a number of program categories had been made, determined after the previous parts of the data collection process were completed.

To facilitate the collection of data in part two above, a draft protocol for the follow-up phone interviews was developed (see Appendix C).

DESCRIPTION OF EVALUATION TASKS

A number of specific evaluation tasks were identified and completed. To provide context for the evaluation and to guide the development of the metrics framework, the team completed a literature review of entrepreneurship development project evaluations conducted by organizations such as Organisation for Economic Co-operation and Development (OECD), Small Business Administration (SBA), Economic Development Administration (EDA), US Department of Agriculture (USDA), and National Institute of Standards and Technology (NIST) – Manufacturing Extension Program (MEP) and Advanced Technology Program (ATP), as well as evaluations by private organizations such

as Community Development Venture Capital Alliance (CDVCA), National Business Incubation Association (NBIA) and other local and state organizations (see Chapter 3 and Appendix A). In addition to guiding development of the metrics framework, this review helped the evaluation team determine whether a comparative analysis of ARC performance relative to other similar types of initiatives was feasible.

Members of the evaluation team conducted phone interviews with non-project stakeholders to identify the broader impacts of ARC Entrepreneurship Initiative projects. These individuals tended to be national or regional experts on economic development and the specific issues and challenges facing the Appalachian region or specific states and localities within the ARC service area (see Appendix B for a list of stakeholders interviewed and Appendix D for the protocol used.) Interviews were also conducted with state program managers to develop an understanding of how the EI was implemented in each state and with other key leaders who had deep experience in the region. Recurring themes from these key informant interviews were identified and reported as qualitative impacts of ARC program investments.

The most significant evaluation task was the team's review of project files provided by ARC for a sample of 114 projects to understand the purpose, goals, objectives, and identified outputs and outcomes. ARC's performance measurement system tracked a number of key performance metrics across projects that were relevant to this evaluation:

- Businesses served
- Jobs created
- Jobs retained
- Project participants
- New businesses created
- Private investment leveraged.

While this common set of metrics facilitates assessment of the impacts of ARC's project portfolio, the evaluation team also used the metrics framework developed from the literature review to collect additional data on the sample projects. The team conducted phone interviews with key staff of each project's lead institution to review and/or collect information and data on both the performance metrics reported to ARC and the broader set of performance metrics identified by the project team in consultation with the advisory group. It is important to note that few project leaders were able to report data for this broad set of metrics. Since these metrics were not necessarily identified as outcomes by the grantees, it was not expected that they would be able to report on all of these metrics. However, the evaluation team wanted to be able to capture as broad a set of performance metrics as possible during these interviews, so the metrics framework was used as a guide.

Using data obtained from final project reports submitted to ARC and data collected during the phone interviews, the team prepared a descriptive statistical analysis of performance metrics. This analysis allowed the team to evaluate how sample projects had achieved their stated objectives and how additional metrics contribute to understanding the outcomes and impacts of project investment. These interviews provided useful data on project outcomes. As part of the effort to gain a sense of impact beyond individual projects, the project team also conducted site visits to four locations with the region. These site visits were used to conduct personal interviews and/or focus groups with project teams and other community stakeholders. The insights gained through these site visits helped to confirm what the team learned through other interviews and to provide case examples to illustrate specific lessons learned associated with this evaluation.

A final task was to conduct a meta-analysis of the outcomes and impacts associated with ARC projects as compared to any benchmarks identified through the literature review. The purpose of this analysis was to assess the impacts of ARC programs relative to similar investments in economic development activities. As described in Chapter 3, the literature review identified few other evaluations that sought to measure the outcomes of entrepreneurship development investments like ARC – initiatives that are designed to change the culture and economic development direction of a region. Assessments were most often completed for particular programs, such as SBDCs, with a focus on measuring impacts at the individual entrepreneur (customer) level. Most of these assessments have measured outputs from program activities, e.g., number of clients served, dollars invested, as opposed to outcomes on either individual businesses or the overall economy.

It was difficult to use information from these previous assessments for a comparative analysis of the ARC EI since ARC investments were strategically made to demonstrate the potential for entrepreneurship development and to change attitudes about economic development within communities and the broader region. Specific projects were not designed simply to create jobs, but had a broader set of goals including, for example, to:

- Expand use of e-commerce
- Create an angel network
- Double the number of high schools teaching entrepreneurship
- Train teachers to use entrepreneurship curriculum
- Prepare 100 new business plans as part of a competition
- Complete a business incubator feasibility study and strategic plan
- Attract 10,000 visitors in first year of a heritage tourism development.

Even detailed metrics for these types of broader goals tell only part of the story. It is not possible to talk about entrepreneurship development by reporting on any single metric. However, in lieu of a broader meta analysis, it was possible to calculate for the sample projects and for the entire portfolio an estimate of public cost per job created that could be compared to estimates for other similar programs. These comparisons are provided in Chapter 6.

As a result of these challenges, the evaluation team chose to recognize the embryonic nature of entrepreneurship development evaluation research and to use what had been learned through both the literature review and in-depth assessment of sample projects to suggest what performance metrics would best capture the essence of initiatives like ARC's EI – a “best in class” metrics system. This system is discussed in detail in Chapter 9.

SAMPLE SELECTION PROCESS

ARC made 448 grants to entrepreneurship-related projects from 1997 through 2005. This evaluation focused on projects whose commitment from ARC had been completed, i.e., “closed” projects between 1997 and 2005; a total of 354 grants were closed at the time of the evaluation. However, since a number of grants were for follow-on investments, the evaluation team further narrowed the universe of eligible projects to a set of 229 unique, closed projects. While most projects were designed to address the specific issues or needs within a community, region or state, some of these investments were in region-wide projects, primarily designed to raise the level of awareness of entrepreneurship generally or to provide an opportunity to explore a specific issue with applicability across the region, such as the role of business incubators or issues related to access to capital for entrepreneurs.

This group of 229 projects represented investments in all types of projects (Table 4.2) and in all states in the region (Table 4.4). It was from this universe of projects that the evaluation sample was drawn. All grants related to a specific project were reviewed as part of the sample analysis.

Each of the closed, unique projects was assigned to one of five categories by reviewing the title of the project and the description of the project contained in the September 2003 ARC publication, Entrepreneurship Initiative: Program Summary and Approved Projects. Some projects in the database were not in this publication, notably those coded as “Commission” rather than coded by a specific state. These Commission projects were coded according to the titles where possible. The five categories used were:

- Capital Access – any project where loans, grants or equity investments were made in companies
- Entrepreneurship Education– all projects for youth
- Incubator – any project to study the feasibility of, plan, or operate an incubator; virtual incubators included under technical assistance
- Sectors – any project whose aim was to support entrepreneurs in a single sector or type of business; excluding incubator projects
- Technical assistance and training – any project where assistance was given directly to individual entrepreneurs.

Since community capacity was a cross-cutting theme, the evaluation team determined that all projects in the sample would be evaluated for community capacity building. A total of 28 projects were not coded because they did not have a description, the title was vague, or the project was for a conference or similar activity. The distribution of closed, unique projects is shown in Table 4.2. Based on this distribution, the team randomly selected a sample of 114 projects. Then, three projects were discarded and three were added to make the state distribution more even.

Table 4.2. Distribution by Program Category – Universe of Unique Projects

Category	Number	Percent
Capital Access	18	7.9
Entrepreneurship Education	42	18.3
Incubators	30	13.1
Sectors	40	17.5
Technical Assistance and Training	71	31.0
Other/Not Coded	28	12.2
Total	229	100

The objective was to choose a representative sample of projects, defined as having the same distribution of projects by category and by state as the universe of unique projects. In addition, the team sought to have a sample that was representative in terms of size of investment by ARC. The team concluded that the sample was representative, but not strictly random, as described below.

Table 4.3 shows the number and percent of projects in each program category in the original sample of 114 and in the final sample of 88.⁷² Based on the distribution of the sample projects by program category, the final evaluation sample appears to be representative of ARC’s EI projects as a whole.

The geographic distribution of the sample projects as compared to the distribution by state for the universe of unique projects is shown in Table 4.4 and in Figure 4.1.⁷³ Note that three states, Georgia, North Carolina and South Carolina, appear in the sample at a rate slightly higher than their actual number

⁷² Although 114 projects were included in the original sample, completed interviews were obtained for 88 projects. Project interviews were not completed for a variety of reasons including loss of institutional memory of the project because project leaders had left the organization, inability to schedule interviews after repeated attempts, and the closure of lead organizations.

⁷³ The map in Figure 4.1 indicates that some grants went to organizations outside the region. This apparent anomaly occurs because, in some cases, the lead organization was located outside the ARC region, although the project was implemented within the region.

of projects. These three states had fewer total projects and, in order to include more than one project from each of these states in the sample, the team chose to over sample to insure more representative findings from these states. The sample appears to be representative of the geographic diversity of EI projects.

In terms of ARC investment, the sample again appears to be representative of the project universe. Average ARC investment per project was \$126,387, while the average amount of ARC investment per project in the sample was \$145,997. The range of ARC investments in the universe was \$2,000 to \$2.2 million; within the sample, the range was \$3,500 to \$2.2 million. The total investment in the ARC projects was \$42,971,688; the total in the sample was \$12,847,733.

Table 4.3. Distribution by Program Category – Original and Final Sample of Projects

CATEGORY	ORIGINAL	ORIGINAL %	FINAL	FINAL %
Capital Access	10	8.8	8	9.1
Entrepreneurship Education	23	20.2	17	19.3
Incubators	17	14.9	12	13.6
Sectors	23	20.2	17	19.3
Technical assistance and Training	41	36.0	34	38.6
Other/not coded	---	---	---	---
Total	114	100%	88	100%

CAVEATS TO THE EVALUATION APPROACH

Any evaluation must address the potential caveats associated with the proposed methodology. While it is important to acknowledge and, to the extent possible, mitigate these shortcomings, the methodology used in this project was as rigorous as possible given the diverse set of individual projects, each with its own set of self-defined performance measures that characterize the ARC Entrepreneurship Initiative.

The first caveat to the selected methodology was its reliance on self-reporting of outcomes and other performance metrics. In many circumstances, this would be a severe constraint on the integrity and objectivity of the data and conclusions. In this case, however, the grantee organizations were required to submit final reports as part of their contractual agreement with ARC and these reports could be, and often were, subject to audit. In addition, ARC’s Regional Planning and Research division made quasi-random validation field visits to project leaders.

The goal of these visits was to validate that the activities proposed under the grant were actually taking place. The evaluation team took the view that the project reports could legitimately be regarded as binding and accurate depictions of the impacts associated with each project. It was beyond the scope of this evaluation to independently verify the data reported by individual projects as part of their reporting to ARC or as part of the data collection process associated with this evaluation.

To develop insights into the broader policy impacts associated with ARC investments, we chose to rely on interviews with key stakeholders, an adaptation of the key informant research approach. Since these broader impacts related to such things as changes in attitudes toward entrepreneurship and economic development in the region, renewed hope for the future, and the elevation of a new set of leaders, the best means of gaining insight into these changes in regional or community capacity was to question those who had deep appreciation for the culture of Appalachia, extensive experience working in economic development in the region, and expertise in particular project areas in which ARC invested. Recognizing the inherent bias in relying on interviews with individuals to assess overall change in a region, the evaluation team chose to identify a broad group of stakeholders and to report recurring themes and observations that were widely held within this group.

Another caveat relates to what might be called a “bias toward success.” If the universe of closed projects does not include both “successful” and “failed” projects, the evaluation results will be biased toward success, i.e., the evaluation will not capture the insights and outcomes (or lack thereof) associated with projects that were not successful. Indeed, failed projects may provide insights that are helpful in addressing some of the research questions articulated in this proposal. Based on the outcome of the project interviews, it was clear that the sample included projects that were successful and sustainable, as well as those that were not.

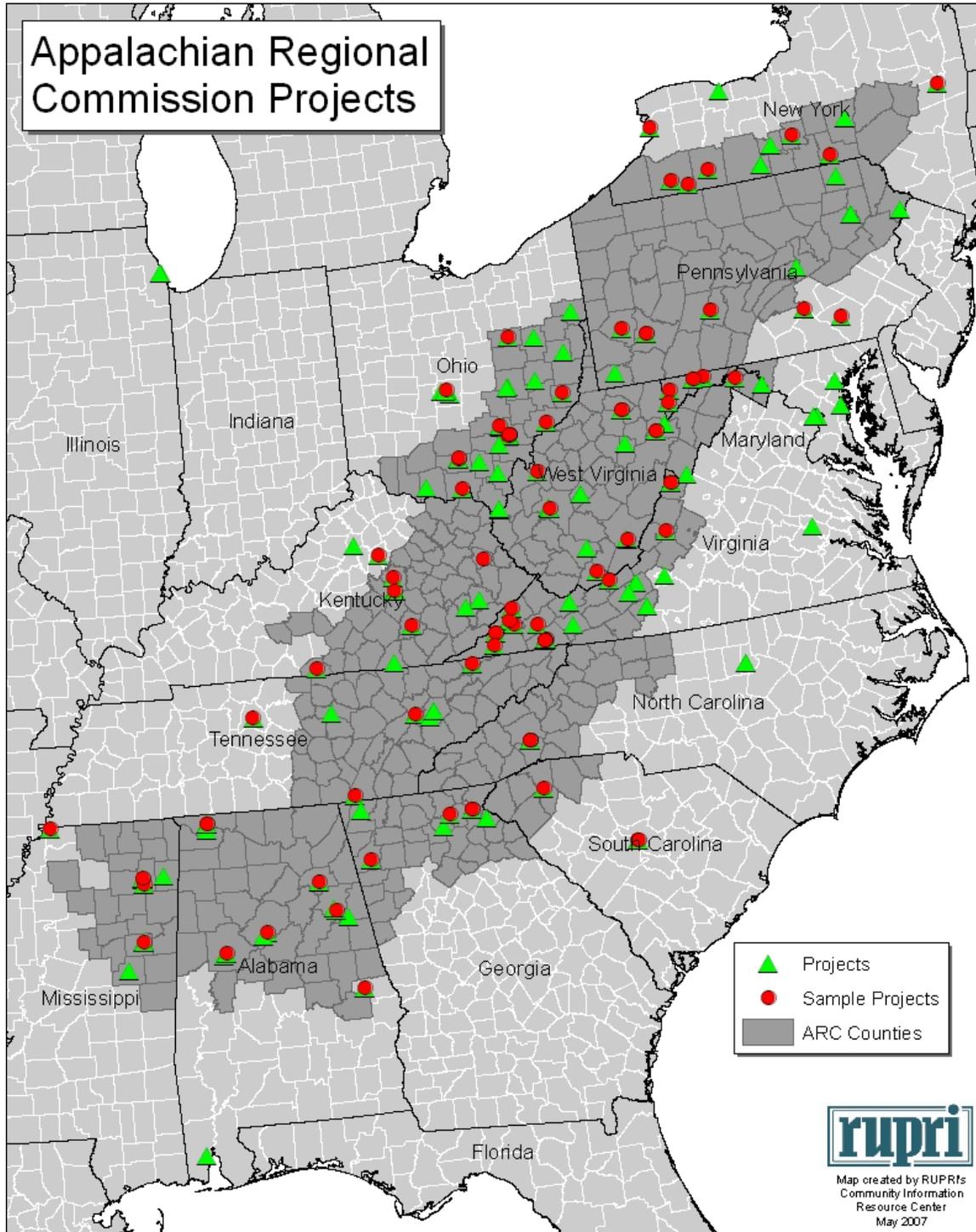
The final caveat relates to the rigor of statistical analysis permitted as part of this evaluation. The small sample size and the diverse types of projects included in the sample prevent the use of sophisticated statistical models or methods. However, the descriptive statistical methods used allowed us to address the critical research questions outlined above and to provide recommendations for ARC’s consideration in guiding the entrepreneurship investments in the future.

Table 4.4: Distribution of ARC Projects by State – Universe of Unique Projects, Original Sample and Final Sample*

	# UNIVERSE	# ORIGINAL SAMPLE	# FINAL SAMPLE	% UNIVERSE	% ORIGINAL SAMPLE	% FINAL SAMPLE
Alabama	20	11	8	10	10	9
Georgia	7	5	4	3	4	4
Kentucky	14	8	6	7	7	7
Maryland	11	5	5	5	4	6
Mississippi	14	8	5	7	7	6
New York	16	9	7	8	8	8
North Carolina	3	3	3	1	3	3
Ohio	26	14	12	13	12	14
Pennsylvania	12	7	6	6	6	7
South Carolina	3	3	3	1	3	3
Tennessee	10	6	4	5	5	4
Virginia	38	21	14	19	18	16
West Virginia	21	11	10	10	10	11
ARC Commission	6	3	1	3	3	1
	201	114	88	100	100	100

* A total of 28 projects were not coded as described in the text.

Figure 4.1. Map of Sample and Total EI Projects, by State



CHAPTER 5 THE WIDER REGIONAL ECONOMY – ENTREPRENEURSHIP TRENDS IN APPALACHIA

INTRODUCTION

The Entrepreneurship Initiative was a bold attempt to bring about an economic and attitudinal transformation across the Appalachian region. It is therefore appropriate to step back from the specifics of the initiative – the individual projects and programs funded and the communities in which they are located – to consider at a more general level entrepreneurship trends across the region. In particular, there is value in looking at the state of entrepreneurship in Appalachia at the beginning of the initiative, in comparison with the nation as a whole, and whether there has been any discernible change in the distribution of entrepreneurial activity within the region. The initiative was launched in 1997 and this evaluation considered projects closed through 2005, so these are the two comparison dates used to assemble data in the following analysis. No attempt is being made to establish cause and effect; the analysis is intended to demonstrate the context within which the initiative was implemented.

THE CHALLENGE OF MEASUREMENT

Entrepreneurship is a difficult concept to measure, and many aspects of entrepreneurship success are intangible.⁷⁴ However, several data sources allow an examination of employment and income indicators at the county level to assess general entrepreneurship trends. This analysis relies upon three data sets:

- Bureau of Economic Analysis' Regional Economic Information System
- U.S. Census Bureau's Nonemployer Statistics
- U.S. Census Bureau's County Business Patterns.

The Center for the Study of Rural America at the Federal Reserve Bank of Kansas City developed a series of indicators on the breadth and depth of entrepreneurship at a regional level.⁷⁵ These measures use data from the Bureau of Economic Analysis' Regional Economic Information System and the U.S. Census Bureau's Nonemployer Statistics. The "breadth" of entrepreneurship is measured by nonfarm proprietors as a proportion of total nonfarm employment, and the "depth" of entrepreneurship is a measure of

⁷⁴ Stephan J. Goetz and David Freshwater, "State-Level Determinants of Entrepreneurship and a Preliminary Measure of Entrepreneurial Culture," *Economic Development Quarterly* 15.1 (February 2001):58-70.

⁷⁵ Sarah Low, "Regional Asset Indicators: Entrepreneurship Breadth and Depth," *The Main Street Economist* (September 2004):1-4.

nonfarm proprietors' income per total nonfarm proprietors. These indicators have been applied to all the counties in the Appalachian region for 1997 and 2005.

The second set of indicators follows from work of the Association for Enterprise Opportunity (AEO). This organization uses the U.S. Census Bureau's Nonemployer Statistics and County Business Patterns data to estimate the number of microenterprise businesses and the number of microenterprise employees.⁷⁶ These datasets have been used in this analysis to provide estimates for the number of microenterprises and the amount of microenterprise employment for Appalachian counties for 1997 and 2005.⁷⁷

Additionally, a measure was developed to provide a sense of how important entrepreneurship is to the local economy. This measure presents both proprietors' income as a proportion of total personal income in each county in Appalachia and – in order to distinguish the effects of entrepreneurship from broader trends – shows how these two components have themselves changed over time.

It should be noted that ARC used a broad definition for the EI that includes small- and medium-sized enterprises with fewer than 200 employees. This has particular relevance for the capital access programs and for some of the technical assistance activities, but for the purposes of this analysis data on proprietors and microenterprises have been used as they serve as better (but far from perfect) proxies for entrepreneurial activity. To provide a context, Table 5.1 shows growth rates in the number of new businesses in different size categories between 1997 and 2005.

Table 5.1: Change in the Number of Small- and Medium-Sized Enterprises

Size # Employees	410 ARC COUNTIES			UNITED STATES		
	1997	2005	% Change	1997	2005	% Change
1-4	274,877	208,856	2.2	3,757,627	4,119,363	9.6
5-9	106,893	110,852	3.7	1,354,488	1,411,199	4.2
10-19	64,319	70,180	9.1	856,118	937,617	9.5
20-49	41,708	46,164	10.7	572,437	636,625	11.2
50-99	13,773	15,258	10.8	194,068	219,324	13.0
100-249	8,413	8,750	4.0	113,832	125,027	9.8
Total	509,983	532,060	4.3	6,848,570	7,449,155	8.8

Source: U.S. Census Bureau, County Business Patterns – Establishments by Size Class

⁷⁶ For more information, see <www.microenterpriseworks.org>.

⁷⁷ The number of microenterprise businesses is the number of nonemployer establishments plus the number of establishments with 1-4 employees. The estimate of microenterprise employment is the number of nonemployers plus an average of 2.5 employees per establishment (establishments with 1-4 employees). This methodology differs from the AEO methodology.

Overall, the growth rate of business establishments with fewer than 250 employees in the ARC region was less than half of that of the nation as a whole, with the greatest divergence in those establishments with fewer than five employees and those in the range of 100-249 employees. In no size category does the ARC region outperform the national rate. Given the comparatively low growth rates for small- and medium-sized enterprises in the region, the EI's inclusion of these firms as a target for support appears to be strategic.

UNDERSTANDING THE REGIONAL CONTEXT

Three main observations derive from the following analysis of regional entrepreneurship data and trends:

- Trends in nonfarm proprietor and microenterprise employment in Appalachia showed an increase over the 1997-2005 period consistent with the nation as a whole. The counties benefiting most from above national average increases were in the southern tier of Appalachia.
- Trends in nonfarm proprietor income showed the Appalachian region lagging behind U.S. levels in 1997 and slipping further behind by 2005. Forty-two percent of Appalachian counties saw a decrease in income levels, primarily in the northern and central tiers, whereas 25% saw increases in nonfarm proprietor income levels higher than the national rate, the majority of which are located in the southern tier.
- Trends in the impact of entrepreneurship on the local economy, as might be expected, generally echo the trends in nonfarm proprietor income, with similar levels in Appalachia and the U.S. in 1997, but with Appalachia substantially falling behind by 2005. This decline occurred in spite of the fact that almost all Appalachian counties experienced increases in total personal income. Only 15% of counties benefited from levels higher than the national rate in 2005, and these were evenly distributed across the region.

A detailed presentation of the data underlying these observations follows.

Entrepreneurship Employment

As there are many ways to determine or interpret what constitutes entrepreneurship employment, two methods are presented here, each of which gives a slightly different picture of entrepreneurship employment in the region. Table 5.2 provides a summary of data for the U.S. and the 410 counties that comprise the Appalachian Region.

As the table shows, trends in entrepreneurship employment in Appalachia are broadly similar to those for the nation as a whole. In 1997, nonfarm proprietor employment comprised 15.5% of total nonfarm employment in the U.S. and

15.6% in Appalachia. By 2005, these values had increased to 18.2% in the U.S. and 18.0% in Appalachia.

Table 5.2. Indicators of Entrepreneurship Employment

INDICATOR / MEASURE	1997 VALUE	2005 VALUE
Nonfarm Proprietors Employment		
U.S.	23,648,200	31,147,600
Appalachia	1,744,246	2,202,141
Nonfarm Proprietors Employment/Total Nonfarm Employment		
U.S.	15.5%	18.2%
Appalachia	15.6%	18.0%
Number of Microenterprise Businesses		
U.S.	19,197,236	24,511,431
Appalachia	1,432,733	1,757,105
Estimate of Microenterprise Employment		
U.S.	24,833,677	31,690,476
Appalachia	1,845,049	2,178,389
Microenterprise Employment Estimate/Total Nonfarm Employment		
U.S.	16.3%	17.9%
Appalachia	16.5%	17.8%

Sources: U.S. Census Bureau Nonemployer Statistics and County Business Patterns; Bureau of Economic Analysis, Regional Economic Information System

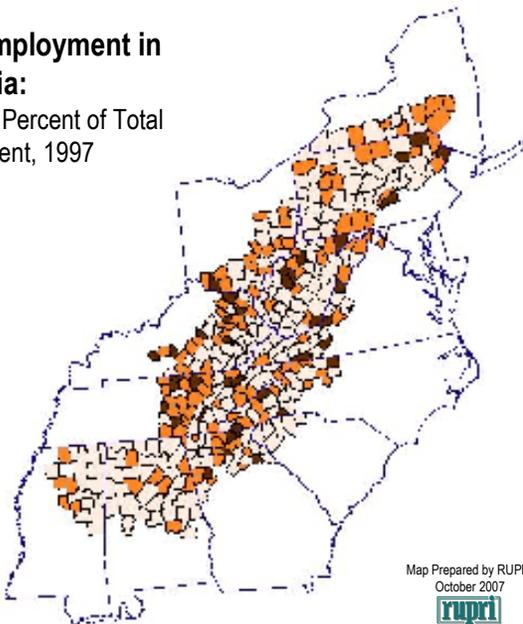
The following maps show nonfarm proprietors' employment as a proportion of total nonfarm employment in the Appalachian region. In 1997, there were 39 counties in Appalachia in which nonfarm proprietors accounted for 30 percent or more of total nonfarm employment (Figure 5.1); this number almost doubled to 78 counties by 2005 (Figure 5.2).

Figure 5.1

Entrepreneurship Employment in Appalachia:

Nonfarm Proprietors as a Percent of Total Nonfarm Employment, 1997

- 7.96% to 19.99% (243)
- 20% to 29.99% (128)
- 30% to 60.15% (39)



Data Source: Bureau of Economic Analysis, Regional Economic Information System

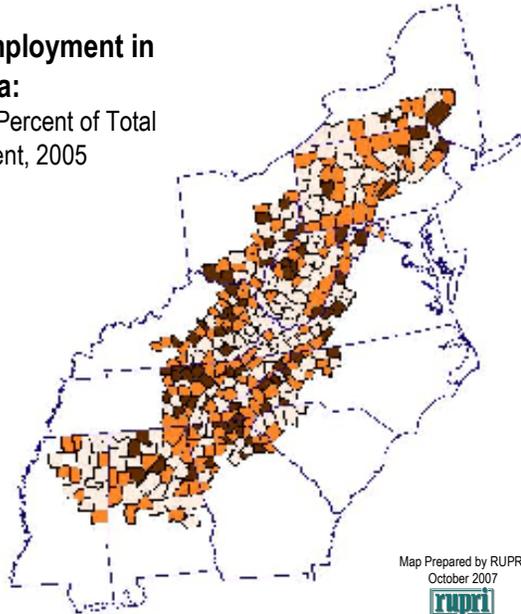
Map Prepared by RUPRI
October 2007



Figure 5.2

**Entrepreneurship Employment in Appalachia:
Nonfarm Proprietors as a Percent of Total
Nonfarm Employment, 2005**

- 4.46% to 19.99% (187)
- 20% to 29.99% (145)
- 30% to 66.16% (78)



Data Source: Bureau of Economic Analysis, Regional Economic Information System

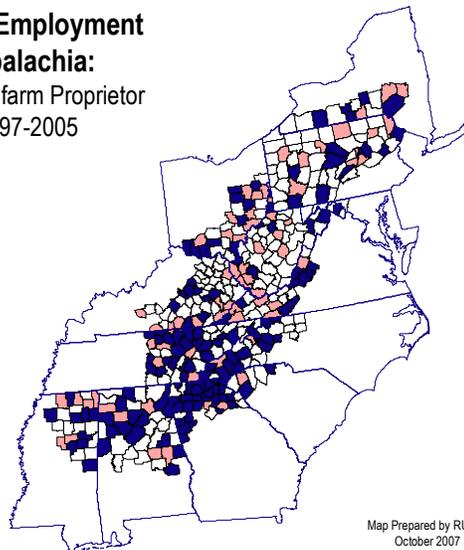
Map Prepared by RUPRI
October 2007

Nonfarm proprietor employment increased 31.7% from 1997 to 2005 in the U.S. and 26.3% in Appalachia. Levels increased in all but 70 Appalachian counties from 1997 through 2005, and grew at a rate exceeding the national average in 141 Appalachian counties – more than doubling in 21 counties (Figure 5.3).

Figure 5.3

**Entrepreneurship Employment
Change in Appalachia:
Percent Change in Nonfarm Proprietor
Employment, 1997-2005**

- Decrease or No Change (70)
- Increase 0.1%-31.7% (199)
- Increase 31.8%-271.7% (141)



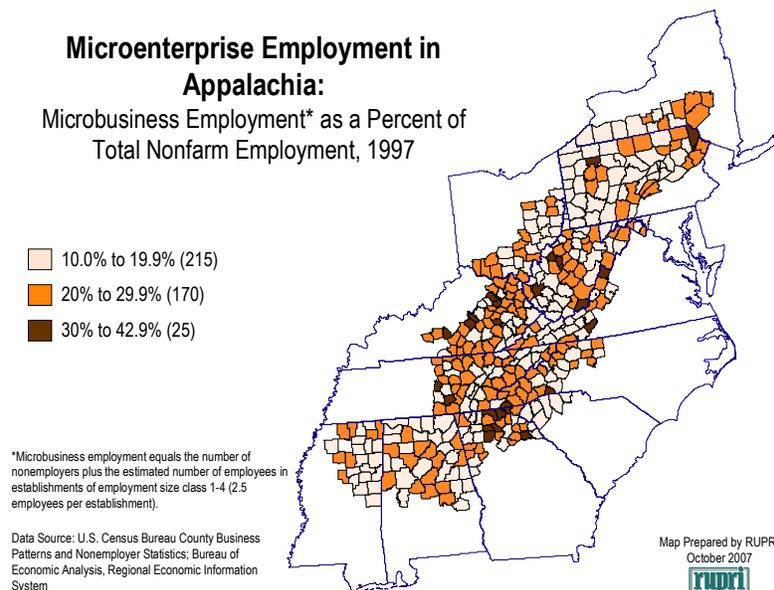
Data Source: Bureau of Economic Analysis, Regional Economic Information System

Map Prepared by RUPRI
October 2007

As Figure 5.3 shows, although the distribution of growth in entrepreneurship employment extends to all parts of the region, there is a concentration of counties with growth above the national average in eastern Tennessee, western North Carolina, northern Georgia and northern Alabama.

Examining the number of microenterprise employees shows a similar picture of Appalachia tracking the national levels. In 1997, microenterprise employment as a percent of total nonfarm employment was 16.3% in the U.S. and 16.5% in Appalachia. By 2005, these levels had increased to 17.9% and 17.8% respectively. In Appalachia in 1997, there were 25 counties in which microenterprise employment accounted for 30% or more of total nonfarm employment (Figure 5.4); by 2005 there were 48 such counties (Figure 5.5).

Figure 5.4



From 1997 to 2005, the number of microenterprise businesses increased 27.7% in the U.S. and 22.6% in Appalachia. Microenterprise employment increased 23.6% in the U.S. and 18.1% in Appalachia over this same period. Only 24 counties in Appalachia had a decrease or no change in the number of microenterprise businesses (Figure 5.6), and only 44 counties saw a decrease or no change in microenterprise employment from 1997 to 2005 (Figure 5.7).

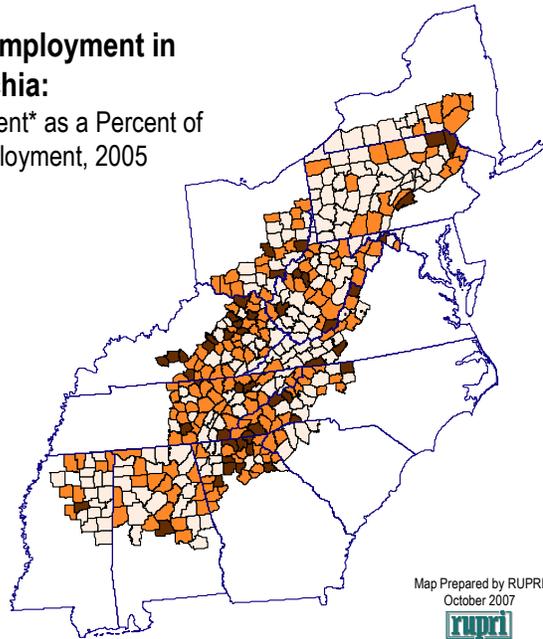
Figure 5.5

Microenterprise Employment in Appalachia:
Microbusiness Employment* as a Percent of Total Nonfarm Employment, 2005

- 8.27% to 19.9% (196)
- 20% to 29.9% (166)
- 30% to 45.7% (48)

*Microbusiness employment equals the number of nonemployers plus the estimated number of employees in establishments of employment size class 1-4 (2.5 employees per establishment).

Data Source: U.S. Census Bureau County Business Patterns and Nonemployer Statistics; Bureau of Economic Analysis, Regional Economic Information System



Map Prepared by RUPRI
October 2007

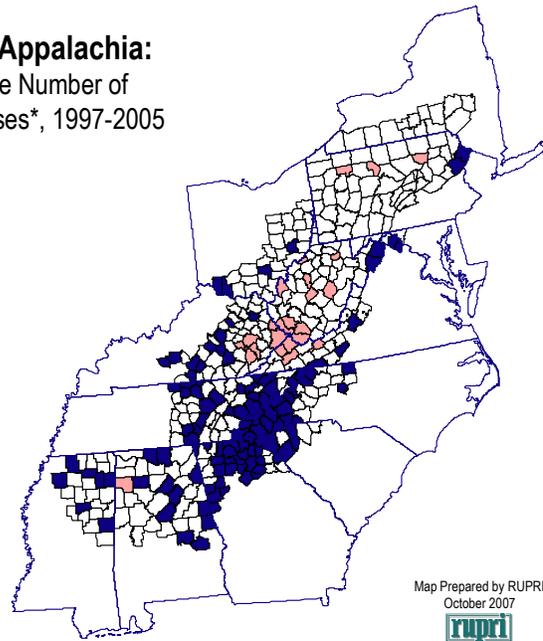
Figure 5.6

Microenterprise in Appalachia:
Percent Change in the Number of Microenterprise Businesses*, 1997-2005

- Decrease or No Change (24)
- Increase 0.1%-27.7% (272)
- Increase 27.8%-124.7% (114)

*Microbusiness business are the number of nonemployers plus the number establishments of employment size class 1-4.

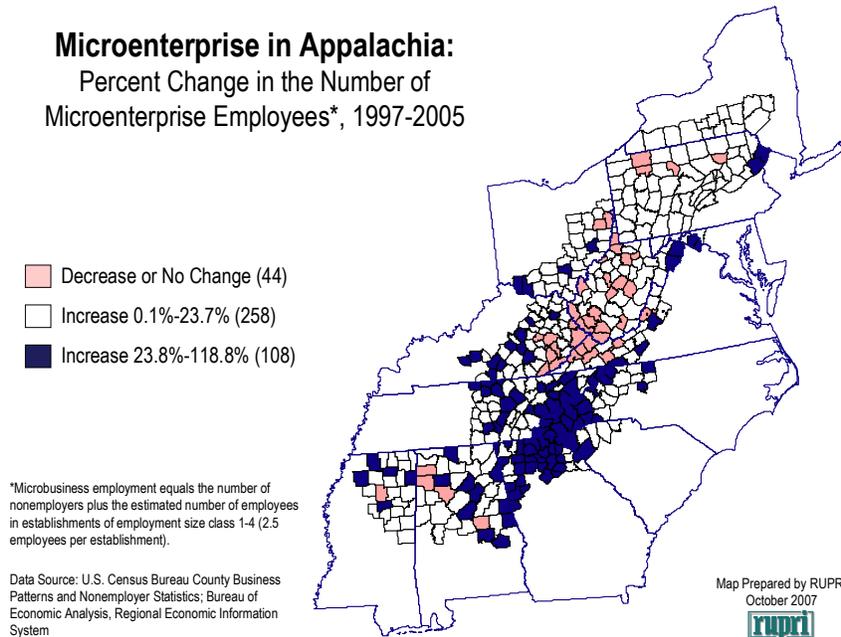
Data Source: U.S. Census Bureau County Business Patterns and Nonemployer Statistics; Bureau of Economic Analysis, Regional Economic Information System



Map Prepared by RUPRI
October 2007

Figure 5.7

Microenterprise in Appalachia:
Percent Change in the Number of
Microenterprise Employees*, 1997-2005



Entrepreneurship Income

A measure of entrepreneurship income is nonfarm proprietors' income per nonfarm proprietor employment. Table 5.3 shows this indicator for 1997 and 2005, along with other indicators of income and earnings as a basis for comparison.

Table 5.3. Indicators of Entrepreneurship Income

INDICATOR / MEASURE	1997 VALUE (ADJUSTED TO \$05)	2005 VALUE
Nonfarm Proprietors' Income / Nonfarm Proprietor Employment		
U.S.	\$27,881	\$30,193
Appalachia	\$23,094	\$23,218
Appalachia as a % of U.S. Value	82.8%	76.9%
Per Capita Income		
U.S.	\$30,827	\$34,471
Appalachia	\$25,687	\$28,336
Appalachia as a % of U.S. Value	83.3%	82.2%
Wage & Salary Disbursements / Wage & Salary Employment		
U.S.	\$36,331	\$40,146
Appalachia	\$30,706	\$32,779
Appalachia as a % of U.S. Value	84.5%	81.6%

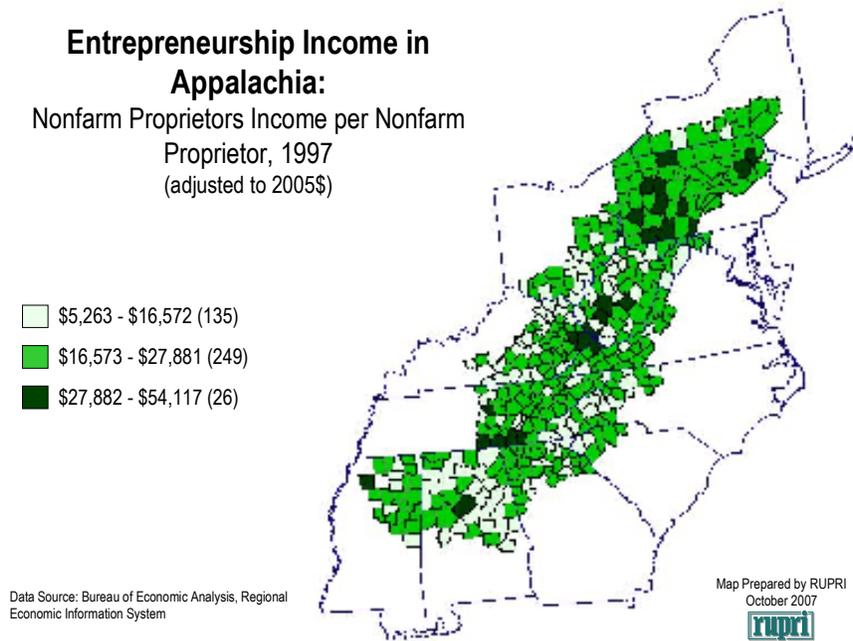
Source: Bureau of Economic Analysis, Regional Economic Information System

On all measures of income, Appalachia lags somewhat behind the national figures and fell further behind over the period 1997-2005. In 1997, the three

income indicators for Appalachia were between 82% and 85% of the U.S. value. By 2005, nonfarm proprietor income per nonfarm proprietor had fallen to 76.9% of the U.S. value and wage and salary disbursements per wage and salary job had slipped to 81.6% of the U.S. level.

In 1997, nonfarm proprietor income per nonfarm proprietor (adjusted to 2005 dollars) ranged from \$5,263 to \$54,117 in Appalachia (Figure 5.8). In 26 counties in Appalachia, the value exceeded the U.S. value of \$27,881 for this indicator. In 2005, nonfarm proprietor income per nonfarm proprietor in Appalachia ranged from \$7,190 to \$64,689, and 28 counties had values exceeding the U.S. figure of \$30,193 (Figure 5.9).

Figure 5.8

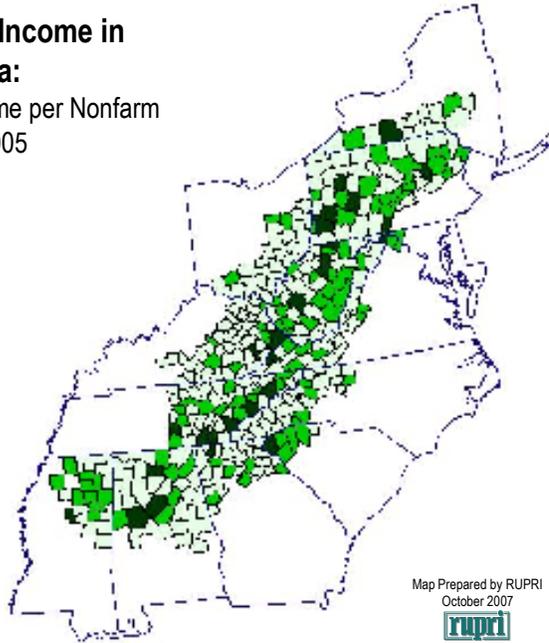


Total nonfarm proprietors' income (real \$2005) increased by 42.6% in the U.S. and 26.9% in Appalachia from 1997 to 2005 (Figure 5.10). Within Appalachia, total nonfarm proprietors' income decreased in 172 counties, noticeably in New York, Pennsylvania, eastern Kentucky, western West Virginia and southwestern Virginia. Increases were experienced in 238 counties – 102 counties in Appalachia had increases in nonfarm proprietors' income exceeding the national rate, and in 22 counties income more than doubled during this time period. The greatest gains were to be found in eastern West Virginia, eastern Tennessee, western North Carolina, and northern Alabama.

Figure 5.9

Entrepreneurship Income in Appalachia:
Nonfarm Proprietors Income per Nonfarm Proprietor, 2005

- \$7,189 - \$18,641 (284)
- \$18,642 - \$30,193 (98)
- \$30,194 - \$64,686 (28)



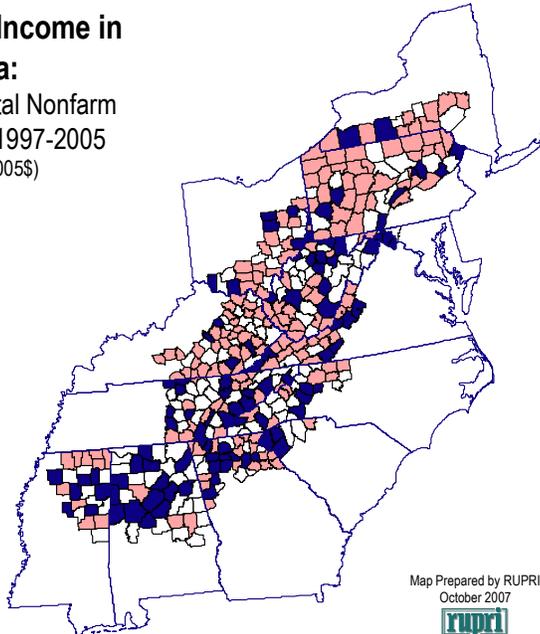
Data Source: Bureau of Economic Analysis,
Regional Economic Information System

Map Prepared by RUPRI
October 2007

Figure 5.10

Entrepreneurship Income in Appalachia:
Percent Change in Total Nonfarm Proprietors' Income, 1997-2005
(1997 adjusted to 2005\$)

- Decrease (172)
- Increase 0.1%-42.6% (136)
- Increase 42.7%-188.7% (102)



Data Source: Bureau of Economic Analysis,
Regional Economic Information System

Map Prepared by RUPRI
October 2007

Entrepreneurship's Contribution to the Local Economy

One method of assessing the importance of entrepreneurship to the local economy is to examine the share of nonfarm proprietors' income to total county personal income in 1997 and 2005. Table 5.4 summarizes this indicator for the U.S. and Appalachia.

Table 5.4. Indicators of Entrepreneurial Contribution

INDICATOR/MEASURE	1997 VALUE	2005 VALUE
Nonfarm Proprietor Income/Total Personal Income		
U.S.	7.8%	9.2%
Appalachia	7.0%	7.6%

As Table 5.4 shows, Appalachia has fallen substantially behind the U.S. on this measure of entrepreneurial contribution. Within Appalachia in 1997, 90 counties had shares greater than the national average of 7.8% (Figure 5.11), but by 2005, there were only 63 counties in Appalachia with a share greater than the national average of 9.2% (Figure 5.12). From 1997 to 2005, the nonfarm proprietors' income share of total county personal income increased in 170 Appalachian counties, and decreased in 240 Appalachian counties (Figure 5.13).

Before drawing any conclusions about these increasing or decreasing shares, it is first necessary to look at the trends in actual nonfarm proprietors' income and total personal income. In some cases, proprietors' income share may be increasing as a share because total county income is on the decline, resulting in a higher share even if actual nonfarm proprietors' income did not rise. The map in Figure 5.14 compares nonfarm proprietors' income change to total county personal income change.

In 238 Appalachian counties, nonfarm proprietors' income (in real \$2005) increased from 1997 to 2005, and total county personal income decreased in only 4 of these counties. Nonfarm proprietors' income decreased in 172 Appalachian counties; in 15 of these counties, total county personal income also decreased. The conclusion to be drawn here is that whether or not counties have an increasing or decreasing share of nonfarm proprietor income does not generally appear to be impacted by increases or decreases in total personal income.

Figure 5.11

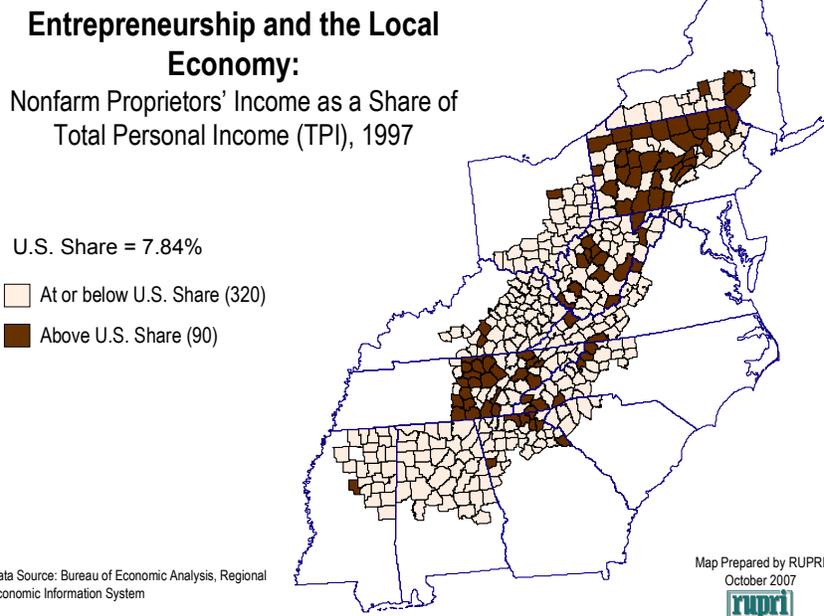


Figure 5.12

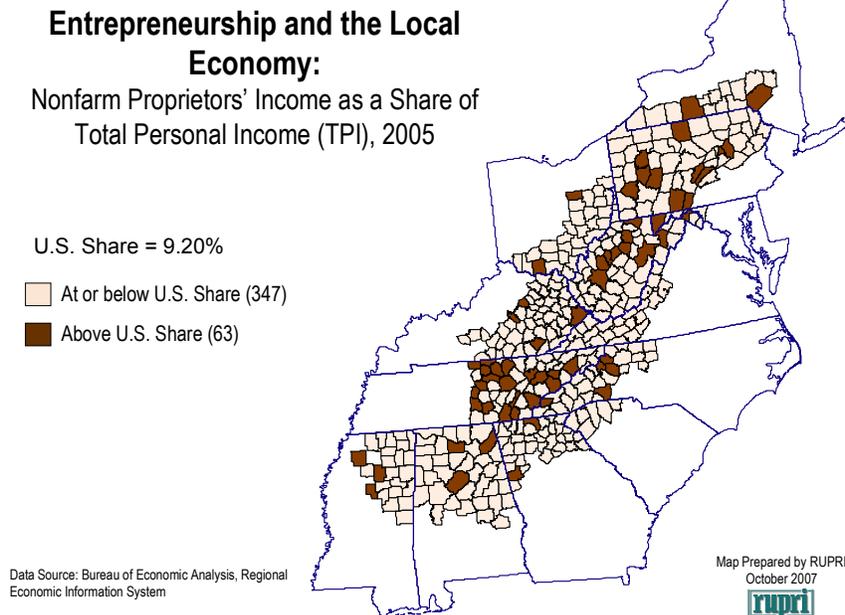
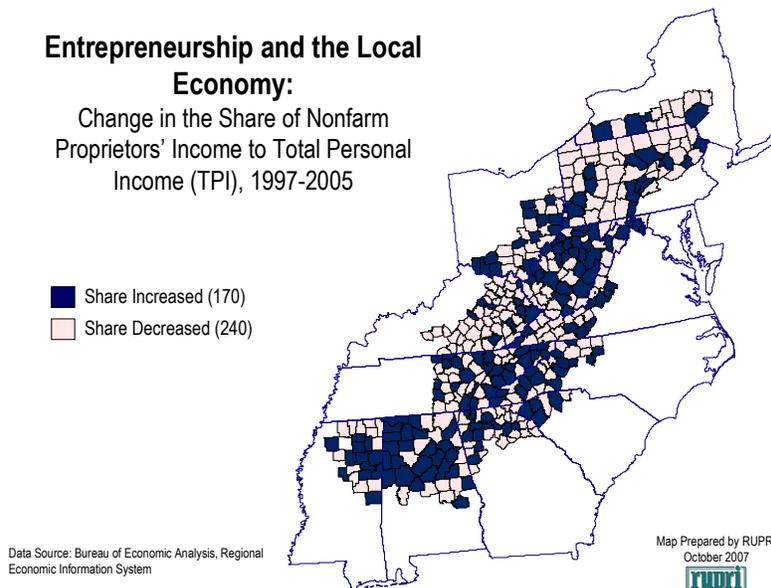


Figure 5.13



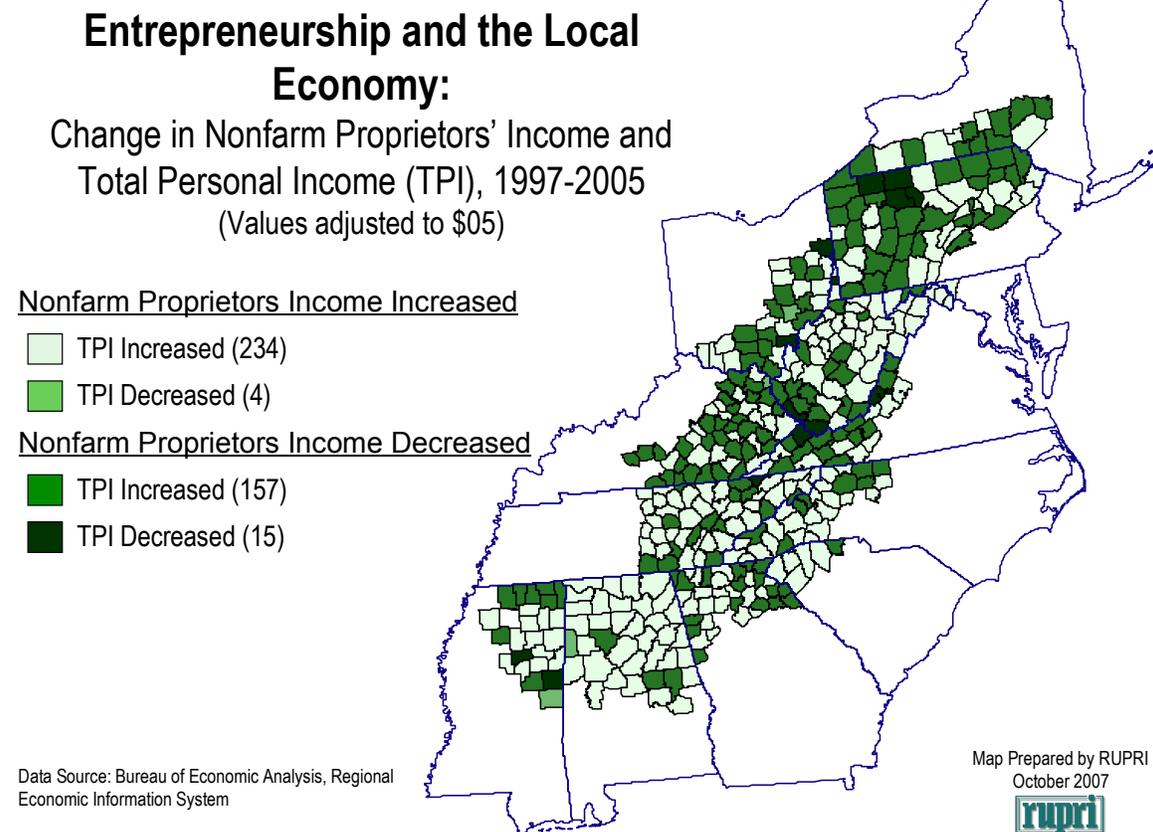
EI PERFORMANCE WITHIN THE REGIONAL CONTEXT

What do these findings suggest about the impact of ARC's EI on the region? While it is difficult to draw any causal connections between ARC investments and these regional data, several trends are evident. Entrepreneurship, when defined broadly as nonfarm proprietor and microenterprise employment, is an increasingly important component of the Appalachian regional economy. For some parts of the region – the southern tier in particular – rates of employment associated with entrepreneurship are greater than for the country as a whole. This observation confirms the importance of investments in entrepreneurship development as a key piece of a regional economic development strategy. In essence, entrepreneurship represents an asset upon which the region can build.

However, in terms of income associated with entrepreneurship, the picture unfortunately mirrors the past – a region continuing to lag behind the rest of the nation in terms of nonfarm proprietors' income. This observation suggests that in spite of ARC's investment, the income generated through entrepreneurial activity is not growing in such a way as to allow the region to catch up with the rest of the country. This analysis also suggests that ARC's investments have had an impact on getting more entrepreneurs into the pipeline, but have had a lesser impact on creating stronger and higher growth entrepreneurs, at least as measured by income trends. To better understand the reason behind this disparity, a more detailed investigation of entrepreneurial income and wage and salary levels associated with entrepreneurship in the region should be undertaken. It was not possible in the current evaluation to gain insights into the income and wealth creating potential of entrepreneurial ventures or into the quality of jobs created for others by these entrepreneurs.

Have ARC investments contributed to creating a more entrepreneurial region? It is difficult to say from analysis of secondary data. Entrepreneurial activity has increased over the period of investment and some parts of the region have performed even better than the nation. It is possible that the Appalachian region would have fallen even further behind the nation in terms of income from entrepreneurship without EI investments. Insights from more detailed analysis of sample projects and key stakeholders help answer this question in a way that secondary data analysis cannot.

Figure 5.14



CHAPTER 6 ARC INVESTMENT PORTFOLIO – PROJECT IMPLEMENTATION AND REPORTED METRICS

Because ARC is built around a federal-state-local partnership, few of its programs operate according to a single cookie-cutter model. Instead, each state and each local program tend to take a distinctive approach to ARC funding programs and opportunities. Differences in program management from state to state and differences in the types of projects funded make generalizing impacts across the EI portfolio difficult. This chapter is designed to provide insights into project implementation so that later discussions of lessons learned and recommendations are understood within this overall context.⁷⁸

ARC required the reporting of several metrics for all project investments, including job creation and retention, business creation, businesses served, and private investment leveraged. Data from the final project reports submitted to ARC by all grant recipients provide useful insights into the size and scope of the initiative, as well as these specific, but limited, impacts of project investments. Deeper understanding of project impacts and the broader policy implications of ARC investments gained through analysis of the sample projects is presented in Chapter 7.

PROJECT IMPLEMENTATION

As with most ARC initiatives, the approach to using the EI funds varied widely across the states in the region. To better understand these differences, and what they might mean in terms of program outcomes, the evaluation team conducted phone interviews with state program managers and with the director of the Entrepreneurship Initiative in Washington, D.C. The purpose of these interviews was to develop a sense of how each state approached the EI and to get a view of the initiative from the state level.

Each governor and state program manager approached the Entrepreneurship Initiative with a different level of commitment to entrepreneurship as an economic development strategy and a different strategy for distributing what in many cases was described as a relatively small resource pool. Table 6.1 describes the strategy or approach used to distribute funds in each state while Table 6.2 shows the distribution of investments across the region over the 1997 to 2005 period. In one state, Pennsylvania, a large portion of resources was used to support a specific intervention – the creation of entrepreneurial networks. In other states, local development districts were responsible for promoting the initiative and encouraging local organizations to submit grant proposals. In most cases, states

⁷⁸ Insights and observations presented in the first section of this chapter are drawn from interviews with regional stakeholders and from project leaders. The evaluation team reported insights that were widely held and recurring across the range of interviews conducted.

Table 6.1. Description of State Approaches to EI Investments*

STATE	APPROACH
Alabama	Entrepreneurship included in Appalachian Development Plan; provided impetus for the state to support diverse homegrown initiatives, including entrepreneurship education and incubators
Georgia	State program manager's office identified local and regional projects to be funded; relied less on Local Development Districts (LDDs) to take the lead on developing projects
Kentucky	State created a government-sponsored commission whose chair was the state alternate; Chair lived in region and selected both local and regional projects; also funded other state organizations to expand activities into region; identified technical assistance gap and tried to select projects to fill it
Maryland	Initially tried to start new programs in the region, providing several years of funding; partnered with WV on projects; efforts were not able to create sustainable new institutions; later stages, plugged EI into ongoing activities in the counties, like Main Street program
Mississippi	State program manager and alternate active in identifying projects; tried to work with local philanthropy organizations
New York	Worked at the state level to fund some large programs to support entrepreneurship education – some local and some regional; supported some other local initiatives
North Carolina	Rolled money over until state had a pool of money; contracted with state Department of Commerce for multi-year program; efforts were not able to create sustainability; locally driven projects were also funded, with some more success
Ohio	Leadership came from Governor's Office of Appalachia; active in identifying projects with both Local Development Districts (LDDs) and nonprofits; joint funding of projects with the Foundation for Appalachian Ohio; open process for soliciting proposals; multi-year funding of regional institutions and one time projects
Pennsylvania	Most of funds were used to support local networking activities; also put money into region-wide youth entrepreneurship program; state program manager and alternate worked out of the Office of Appalachian Development in state Department of Community and Economic Development
South Carolina	Most projects identified by state program managers; relied less on Local Development Districts (LDDs)
Tennessee	Worked with some Local Development Districts (LDDs); major investment made in the development of one organization, leading to the creation of a sustainable organization with a broad reach
Virginia	High priority for the state; spread grants around to as many communities as possible; saw EI funds as being part of a set of resources, including ARC telecommunications and Main Street programs, that communities could tap; used a competitive RFP process with an open workshop planning process leading to a diverse set of project proposals; funded multi-year projects; drew in other funding resources, particularly from foundations
West Virginia	State highlighted entrepreneurship funds as one of many tools available; non-profit organizations stepped up and provided most of the impetus for developing and implementing grant projects; used a competitive RFP process with an open workshop planning process leading to a diverse set of project proposals; funded multi-year projects; drew in other funding resources, particularly other state funds

*Interviews were attempted but not completed with state program managers in Mississippi and Ohio due to illness and staff turnover, respectively, at the time the interviews were undertaken. Information about their approach to the EI was obtained through an interview with the director of the EI.

used their annual allocations to fund a range of projects; in one case, North Carolina, funds were rolled over until the state had a pool of resources to support a larger project.

Several themes were identified through the program manager interviews. From the perspective of local communities, ARC Entrepreneurship Initiative resources were described as “catalytic” and important to demonstrating new approaches to entrepreneurship development. In many cases, these projects would not have gotten started without ARC investment. As one manager described it, these were “but for” resources. At the same time, program managers admitted that the relatively small pool of resources attached to the initiative made it harder to make entrepreneurship investments a priority, particularly if local development districts were not focusing in this area and encouraging proposals from their regions.

It was also clear that the state leaders, including governors and program managers, played a “gate keeping” role in terms of ARC initiatives, including entrepreneurship. Strong support for entrepreneurship from state leaders often translated into more aggressive promotion of the program within the state, such as was seen in Virginia. In addition, since the innovation in entrepreneurship programs was primarily coming from the local rather than the state level, the degree to which the state program manager was networked with local economic development organizations, especially non-profits, could impact the ability to effectively implement the initiative. Much of the investment in West Virginia, for example, was driven by community non-profit organizations.

In addition to the diverse approaches used by the states in allocating resources, ARC investments were spread across a portfolio of program categories. Prior to selecting the evaluation sample, Entrepreneurship Initiative projects were classified into program categories based on a review of project descriptions, including the goals of each project, and follow-up interviews with project leadership. Project goals differed even within program categories. Metrics used to report on project outcomes varied by program category, and it was clear from the interviews with project leaders that job creation and business creation were not the only metrics considered in articulating project goals and reporting outcome measures.

To put the findings of this evaluation into better perspective, a description of the range of projects found within these program types is provided here. These descriptions should provide readers with a sense of the diversity within each project type and the breadth of investments undertaken by ARC in support of entrepreneurship development in the region.

Entrepreneurship Education Projects

Entrepreneurship education projects were designed to introduce entrepreneurship concepts and curricula into the schools, kindergarten through

community college and university. In the language of the programmatic goals set out in Chapter 3, these programs sought to help create more entrepreneurs in the pipeline, and were targeted primarily to students as opposed to adult learners. (Programs for adult learners were included in the technical assistance and training category.) A profile of the sample entrepreneurship education projects appears below.

Sample Entrepreneurship Education Projects

Number of projects = 17
Total ARC investment = \$2,199,207
Average ARC investment = \$129,365
Minimum ARC investment = \$10,000
Maximum ARC investment = \$784,517
Range of years for project investment = 1 – 4

The range of entrepreneurship education projects supported by the EI was quite diverse. For example, funds were used to:

- Support outreach into rural communities for an existing business plan competition
- Create an internship program and place youth in entrepreneurial companies
- Organize summer youth entrepreneurship camps, using REAL (Rural Entrepreneurship through Action Learning) and other curriculum
- Train teachers in the REAL curriculum and bring it into the classroom
- Train middle school students using Junior Achievement, with follow-up training using a virtual business simulation model
- Create student run, school-based enterprises.

Some projects were designed as pilots to test an entrepreneurship education approach in a community or region. Others were designed to build entrepreneurship education capacity by training teachers and incorporating new curriculum into school systems, or by investing in the creation of school-based enterprises that could be passed down to future classes of students. About half the sample projects were defined by project leaders as being sustainable, i.e., they continued beyond the ARC grant with support from other funders or, in some cases, with an additional ARC grant.

With the exception of those projects that created school-based enterprises, most were not designed to create or retain jobs or to build new businesses. Rather, they were designed to expose youth to entrepreneurship with an expectation that these entrepreneurial skills would serve to prepare them to become better employees in the future and/or to motivate them to create their own economic futures through enterprise development. Given their goals, traditional economic development metrics provide an incomplete story of the impact of these projects.

Table 6.2. Annual and Total ARC Entrepreneurship Investments, 1997-2005, by State (*)

STATE	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Alabama	0	159,000	381,663	537,187	198,850	405,000	92,000	518,892	112,675	2,405,267
Georgia	110,000	0	441,826	0	581,529	349,442	83,000	723,747	334,118	2,623,662
Kentucky	92,769	226,000	787,500	290,532	510,500	225,362	657,880	383,794	587,198	3,761,535
Maryland	0	207,000	455,200	548,918	312,379	139,000	99,000	130,000	45,000	1,936,497
Mississippi	0	220,577	30,000	164,970	594,835	157,000	0	200,000	226,000	1,593,382
New York	0	243,140	187,654	920,000	75,000	25,000	145,000	265,000	35,000	1,895,794
North Carolina	0	0	0	1,050,000	0	444,908	200,000	157,500	673,673	2,526,081
Ohio	0	153,940	406,213	451,921	613,700	244,500	1,673,330	15,000	50,000	3,608,604
Pennsylvania	313,397	1,072,808	1,099,000	199,900	659,636	383,750	362,000	460,000	125,000	4,675,491
South Carolina	0	500,000	0	750,000	119,105	752,000	500,000	891,382	58,750	3,571,237
Tennessee	0	451,748	325,000	390,000	410,185	185,000	93,000	201,133	35,000	2,091,066
Virginia	374,500	0	495,380	416,527	476,630	433,000	181,200	280,391	90,000	2,747,628
West Virginia	142,150	752,948	1,075,916	300,537	1,673,748	1,042,835	582,000	458,400	1,105,474	7,134,008
Regional	14,000	332,503	124,623	264,901	169,162	339,610	973,574	108,063	75,000	2,401,436
Total ARC	1,046,816	4,319,664	5,809,975	6,285,393	6,395,259	5,126,407	5,641,984	4,793,302	3,552,888	42,971,688

* Figures include all projects (closed and open) and investments from all funding sources within ARC.

Several examples help to demonstrate the range of entrepreneurship education projects funded by ARC and the type of outcomes they achieved.

In 1999, the Kentucky Science and Technology Council (KSTC) received funding from ARC to establish next generation entrepreneurial schools in two pilot districts. The goal of the project was to create learning communities where students could embrace an entrepreneurial frame of mind and, in turn, to help all students generate ideas for and start new ventures in their home communities. Using initial and follow-on ARC grants, KSTC supported the creation of 99 EdVentures – school-based enterprises – including 31 in high schools, 25 in middle schools, 37 in elementary schools, and 6 district-wide. KSTC has documented the outcomes of these activities in two ways – through metrics including the number of school-based enterprises started (99) and the number of participants in these ventures (27,000) as well as through stories of each individual EdVenture that describe the start-up process, funds raised, students involved, etc.

In West Virginia, ARC funds were used to bring an entrepreneurship focus to an existing summer camp program, using the REAL curriculum. The Ohio-West Virginia YMCA provided leadership for this initiative which secured four years of ARC funding. In addition to serving the 465 student participants, the initiative has generated additional interest in youth entrepreneurship in the state, attracting funding to make the program sustainable and engaging youth in several ways. The statewide economic development planning process, Vision Shared, partnered with the Ohio-West Virginia YMCA to provide a teen perspective on the future of the state. The YMCA held a Teen Forum on West Virginia's Future in 2002 to develop this perspective. The Department of Education created a full-time entrepreneurship coordinator position and hired a certified REAL instructor as the coordinator.

ACEnet in Ohio used ARC funding to extend into three high schools a computer opportunities program designed to provide training to students in setting up computer-based enterprises. The program created three new businesses and 14 new jobs. In addition, however, it expanded the computer technology available in these schools and exposed students to entrepreneurship concepts. Another outcome was the attraction of additional federal support to continue the program beyond ARC funding.

Technical Assistance and Training Projects

Technical assistance and training projects were designed to build the skill sets of individual entrepreneurs by offering them access to one-on-one counseling and workshops related to starting and growing their businesses. The programmatic goals of these programs were to create more entrepreneurs in the pipeline, and better informed and skilled entrepreneurs whose businesses were more productive and created more jobs in the region. Most of these programs were

targeted at adult entrepreneurs as distinguished from the entrepreneurship education projects that primarily targeted youth. A profile of sample technical assistance and training projects appears below.

Sample Technical Assistance and Training Projects

Number of projects = 34
Total ARC investment = \$4,933,997
Average ARC investment = \$145,118
Minimum ARC investment = \$10,000
Maximum ARC investment = \$2,088,961
Range of years for project investment = 1 – 6

One large grant to Pennsylvania to support a statewide technical assistance/networking initiative skews average investment. If the Pennsylvania project is removed from the sample, the range of investments is \$10,000 to \$650,615 and average investment per technical assistance project is \$86,213.

As with education projects, the range of technical assistance projects was quite wide. Investments were used to fund such activities as:

- Grants to individual entrepreneurs to purchase private sector services, such as accounting or legal assistance
- Funding for “how to start a business” and other workshops for entrepreneurs and potential entrepreneurs
- Providing technical assistance in conjunction with a microenterprise program
- Developing export assistance programs for entrepreneurs
- Offering one-on-one assistance to entrepreneurs in accounting, marketing, and other business management areas
- Delivering marketing assistance to clients of a food incubator
- Developing computer-based entrepreneurship training programs
- Providing managerial and technical assistance to high-tech start ups
- Creating a virtual business assistance center.

In general, these projects provided entrepreneurs with access to business support resources, both customized and in workshop settings. Often, these services represented additions or expansions to other programs offered by the local organizations. However, in some cases, these investments were used to create new capacity in the region, such as through the creation of a virtual assistance center. About three quarters of projects were defined as sustainable by project leaders. Several examples provide insights into these technical assistance and training projects.

Kentucky Highlands Investment Corporation (KHIC) received funding from ARC for its business support center, The Launching Pad. These funds were used to provide technical assistance to entrepreneurs, some of whom were customers

(or future customers) who had received capital through KHIC's range of financial instruments. The Launching Pad provided a place for entrepreneurs to access computers and other technology, and to obtain services from KHIC's skilled staff. This assistance served to formalize and build the capacity of KHIC to support the non-financial needs of its business customers. Previous assessment of KHIC's programs found that this technical assistance or managerial support was as important to entrepreneurs as the capital that KHIC provided.⁷⁹

The Ohio Valley Regional Development Commission used ARC funds to provide small grants (up to \$5,000) for entrepreneurs to purchase business services from private sector providers. This program was designed in response to the expressed needs of the Commission's revolving loan customers who sought assistance early in the life of their businesses, before they had the sales and resources to pay for services. The project was successful in meeting the needs of these entrepreneurs and connecting them to appropriate service providers. The Commission was able to help almost twice as many entrepreneurs as initially projected because entrepreneurs often required very small grants to get the help they needed.

Mississippi State University received support to develop training programs to make entrepreneurs aware of the power of marketing via the Internet. In 1998, when the ARC investment was made, the concept and value of e-commerce was not universally recognized. Mississippi State's programs exposed home-based business owners, farmers and youth to Internet marketing concepts. While the program helped individual business owners, it also launched regional and national efforts to develop e-commerce as an effective business strategy. The curriculum developed at Mississippi State is used throughout the country and a national e-commerce education effort through Cooperative Extension continues to support education and training in this area.

Sector Projects

Projects funded in the sectors category were focused on supporting entrepreneurs in a particular sector, such as food, wood products, ceramics, often by building networks among entrepreneurs. In terms of programmatic goals, these projects were designed to create more informed and skilled entrepreneurs, operating more productive businesses that create jobs in the region. The projects included in the sample, however, were as diverse as the sectors that make up the economy of the Appalachian region, including:

- Creation of a consignment gift shop to support local artisans
- Development of an aquaculture program including entrepreneurship training

⁷⁹ David Barkley and Deborah Markley, The Development of an Entrepreneurial Support Organization: The Case of the Kentucky Highlands Investment Corporation, RUPRI Center for Rural Entrepreneurship, Research Case Study Series Number 1, March 2003.

-
- Support for a ceramics corridor cluster in collaboration with a university
 - Operational support for the Ralph Stanley museum and music center
 - Development of a driving tour to cultural and heritage attractions and artisan businesses
 - Funding for a market study of the cut flowers industry in Mississippi
 - Support for workshops on development of a craft woodworking industry.

A profile of sample sector projects appears below. Less than half of project leaders defined their efforts as being sustainable over time. Several examples serve to illustrate the high degree of diversity in these sector projects.

Sample Sector Projects
Number of projects = 17
Total ARC investment = \$1,496,585
Average ARC investment = \$90,976
Minimum ARC investment = \$1,400
Maximum ARC investment = \$393,711
Range of years for project investment = 1 – 4

The Kentucky Artisan Trails Project was designed to create a gateway attraction on I-75 that would promote a driving tour of regional cultural and heritage sites as well as artisan businesses along the route. Through development of an information kiosk on the interstate, a website and hard copy maps, the project helped to encourage tourism development by networking individual sites into a destination tour. The website features products produced by regional entrepreneurs, places for tourists to visit, and events that are planned throughout the region. The project focused on the heritage tourism sector, including entrepreneurs, and developed a network of people, places and organizations that worked to build the sector in the region.

Advantage West, a regional economic development organization in western North Carolina, used ARC investment to help introduce and develop a biotech sector in the region. There was much interest in biotech in the region, but limited staff capacity to move the concept forward. ARC funds were used to hire a biotech coordinator and to develop wet lab space at the community college – the first in the region. Advantage West also established a steering committee to consider strategic opportunities for advancing the sector. These initial investments have helped create a biotech sector focused on the natural products available in the region. The region has attracted additional local government and regional university investments to continue to build this sector.

Appalachian by Design, a non-profit rural economic development organization, wanted to help create a knitting industry in rural Appalachia by connecting female artisans with broader markets. ARC funding was used to help individual rural women develop a cottage knitting industry. The project was initially quite

successful, producing high quality products and tapping new markets. Since its initial success, the project has scaled back as resources became constrained, forcing the organization to focus on a more limited market.

Incubator Projects

Incubators projects in the region were designed to provide a supportive environment for entrepreneurs to hatch and grow new enterprises. Incubator programmatic goals usually related to creating more informed and better skilled entrepreneurs, helping them create more productive businesses and ultimately encouraging more entrepreneurs to stay in the region. ARC investments in incubator projects, however, were generally of three types:

- Investments to determine the feasibility of an incubator in a particular community or region
- Investments to support the building and/or operation of an incubator facility
- Investments to develop programs offered through the incubator.

The sample of 12 incubator investments was equally split across these three types. A profile of sample incubator projects appears below.

Sample Incubator Projects
Number of projects = 12
Total ARC investment = \$913,291
Average ARC investment = \$76,108
Minimum ARC investment = \$10,000
Maximum ARC investment = \$388,084
Range of years for project investment = .5 – 1

Projects tended to be much more short term than the other program types, ranging from six months to one year. Nine of the 12 incubator projects were defined as being sustainable. Examples of incubator projects follow.

ARC funds were used to enhance the services provided by the Clinch Powell Community Kitchen in east Tennessee. While the community kitchen already provided shared space for food entrepreneurs in the area to develop and produce their goods, ARC funds allowed the incubator to purchase new equipment and expand the training support offered to entrepreneurs, particularly in the areas of product development, marketing and general business training. Incubator staff was able to devote more time to exploring marketing channels that would add value to products, for example, by combining gift baskets with specialty food products produced in the region. The incubator was successful in expanding the number of clients served and was able to leverage additional funds to become sustainable.

In western North Carolina, ARC investment was used to create Blue Ridge Food Ventures, a kitchen incubator set up to help farmers and others develop value-added agricultural products. ARC funding provided most of their operating budget, with other income coming from users of the facility. This relatively new incubator (at the time of the interview) developed its capacity to serve its clients by partnering with service providers in the area, such as a microenterprise development organization, to become a “one stop shop.” The incubator staff spent most of their time working with clients on product development, specifically how to put a new twist on a food product.

The city of Gadsden, Alabama received ARC funds to conduct an incubator feasibility study. The city lost a major employer, a steel mill, in 2000 – a devastating blow to the economy. The city’s community development director was looking for alternatives and the ARC funds provided an opportunity to determine whether it would be feasible for the city to develop an incubator. The study concluded that an incubator was feasible and that there were residents in the community who had an interest in starting their own businesses. What the study did, according to the development director, was to give the city information and options – they could begin to think about what kind of incubator facility might be most appropriate, where it would be located and what funding they would need to develop the incubator. The attitude in the city changed when they saw the possibilities associated with an incubator strategy.

Capital Access Projects

Projects in this category, in general, were designed to enhance access to capital for entrepreneurs in the region. The programmatic goals were to create more productive and job creating businesses and entrepreneurs who could remain in the region. Based on ARC investment in this area, access to capital was considered to be critical to helping entrepreneurs start and grow businesses in the region. In addition to the EI investments in capital projects, ARC invested an additional almost \$4 million from area development, regional initiatives, commission and co-chair funds. However, the projects were as diverse as the sources of capital. A profile of capital access projects appears below.

Sample Capital Access Projects
Number of projects = 8
Total ARC investment = \$901,340
Average ARC investment = \$112,668
Minimum ARC investment = \$30,000
Maximum ARC investment = \$447,440
Range of years for project investment = 1 – 6

The geographic regions served by these projects ranged from individual communities to multi-county and even multi-state service areas. While some projects were one-time investments by ARC, others represented multi-year commitments, with additional investments phased in as the project progressed. All of the capital projects in the sample were judged to be sustainable by project leaders, i.e., the projects continued beyond the period of the ARC grant.

ARC investments were used in diverse ways, including:

- Support for research and planning to explore the creation of alternative financial institutions, such as New Market Venture funds, Community Development Financial Institutions (CDFIs), and angel capital networks
- Support for technical assistance and outreach associated with revolving loan funds
- Investment in capital programs ranging from revolving loan funds and microenterprise programs to equity funds.

Several examples serve to illustrate the ways in which many of these capital projects were supported by ARC. Appalachian Community Enterprises (ACE), a non-profit microenterprise program started in northeast Georgia in 1997, received initial funding from ARC in 1999 to support a loan fund, including funds for technical assistance and training. Similar follow-on grants were made to ACE in subsequent years. Building on this base of activity and their track record of lending, in 2004, ACE received CDFI certification and significant funding from ARC's Area Development program for their microenterprise loan program.

In 1998, the South Carolina Appalachian Council of Governments received a modest initial investment from the EI to support the development of a loan fund and technical assistance and outreach to rural entrepreneurs. Complementing this EI investment was significant funding in 1998 under ARC's Regional Initiatives to recapitalize the loan fund. Additional support for the revolving loan fund through ARC's Area Development program was received in 2004.

In 2003, Advantage West, a regional economic development organization in western North Carolina, received funding from ARC's EI to develop a regional entrepreneurship network. Funding was used to put on workshops throughout the region, to develop a website, and to complete a market assessment for a regional investment fund. During this time, Advantage West assisted a number of entrepreneurs in acquiring capital from angel investors. A second grant was used to develop a regional angel investor network that continues to operate in the region.

REPORTED METRICS

From its inception in 1997 through 2005, ARC made almost \$43 million in entrepreneurship-related investments in the region, including investments made

specifically by the Entrepreneurship Initiative. As Table 6.2 shows, annual investments increased from inception in 1997 to a peak in 2001, with gradual reductions in annual investments since then. This pattern of investment represents the phasing in and out of the EI and, in more recent years, the inclusion of entrepreneurship investments in ARC's Asset-Based Initiative. Total investments were made from a number of sources within ARC, with the most significant investment coming through the EI (Table 6.3). Total ARC investment, in turn, leveraged an additional \$72.8 million in private investment (for those projects that have closed) with projected total private leveraged investment of \$109.9 million once all projects in the portfolio have closed.

Table 6.3. ARC Investments from All Sources – Universe of Projects, 1997-2005

SOURCE OF FUNDS	ARC \$
Entrepreneurship Initiative	\$22,519,996
Area Development	11,603,420
Distressed Counties	3,722,992
Commission EI	2,126,380
CoChair Fund	1,553,887
Regional Initiatives	1,368,439
New Markets	52,574
Goal Fund	24,000
Total	\$42,971,688

ARC investments were made in 340 unique projects across the region (Table 6.4). The distribution of both dollars and projects varied across the region, ranging from a high of 48 projects funded in Virginia to a low of nine projects funded in South Carolina. On average, investment per state was \$3.3 million and investment per capita was \$1.82 from 1997 through 2005.

In addition to projects funded in individual states, ARC made investments in a number of projects that had a region-wide focus. For example, regional projects included support for:

- A microenterprise conference
- The development of regional community development venture capital funds, including support for technical assistance
- A survey of Appalachian business incubators
- The creation of entrepreneurship education materials, including working with REAL and Junior Achievement

- A regional conference on entrepreneurship education and training
- A regional technology commercialization initiative
- The development of sector-based entrepreneurship initiatives.

Table 6.4. Distribution of Entrepreneurship Projects Funded from All ARC Sources, 1997-2005*

STATE	# CLOSED PROJECTS	# OPEN PROJECTS	# TOTAL PROJECTS
Alabama	23	5	28
Georgia	7	3	10
Kentucky	22	9	31
Maryland	11	3	14
Mississippi	15	2	17
New York	17	4	21
North Carolina	5	6	11
Ohio	37	3	40
Pennsylvania	15	6	21
South Carolina	4	5	9
Tennessee	11	2	13
Virginia	42	6	48
West Virginia	24	13	37
Region	30	10	40
Total	263	77	340

*These totals include unique projects only.

Table 6.5 shows total and average investment in the universe of ARC projects (both open and closed projects) as well as in the evaluation sample. Average investment per project for the universe was \$126,387, and projects ranged in size from \$2,000 to almost \$2.2 million.⁸⁰ ARC invested almost \$13 million in the specific projects included in the evaluation sample, with average investment per project of \$145,997. Sample projects were drawn from those projects that were primarily funded with Entrepreneurship Initiative dollars, as opposed to

⁸⁰ The \$2.2 million project investment was made in Pennsylvania, where the state chose to invest in building regional assistance networks across the state. While this project was treated as a single unique project, the funds flowed to regions across the state.

Commission EI or CoChair funds. As a result, some of the smaller projects, such as Springboard Awards for Youth Entrepreneurship, were excluded from sample selection providing a slight upward bias on project size. However, the range of projects shows that the sample includes both small and large projects.

Table 6.5. Dollars Invested in Entrepreneurship Initiative Projects, from all sources – Universe and Sample

	ARC \$
Universe of Projects	
Total	42,971,688
Mean	126,387
Min	2,000
Max	2,177,326
Sample Projects	
Total	12,847,733
Mean	145,997
Min	10,000
Max	2,177,326

ARC collected outcome data as part of the final reporting requirements for each project. Table 6.6 shows actual and projected jobs created, jobs retained, new businesses created, and businesses served for the universe of unique projects, as reported in the close out documents submitted to ARC and included in the database provided by ARC. In total, 9,156 jobs were created, 3,022 jobs retained, 1,787 new businesses created, and 8,242 businesses served across the region between 1997 and 2005. On average, projects created almost 27 jobs, retained almost 9 jobs, created 5 new businesses, and served 24 businesses. The 9,156 jobs were created at a cost, in terms of ARC funds invested, of \$4,693. As discussed in more detail in Chapter 7, this figure compares favorably to other economic development efforts.

Table 6.7 shows these same metrics for those projects included in the evaluation sample. Collectively, sample projects created 4,332 jobs, retained 1,351, created 1,083 new businesses, and served 2,957 businesses. On average, sample projects achieved greater outcomes than the universe of projects in terms of job creation (49), job retention (15), new business creation (12), and businesses served (almost 34). This variation can be explained by two factors. First, the universe of projects includes some of the smaller projects funded from ARC sources other than the EI, likely reducing the overall impact numbers for the

universe. Second, the evaluation team was able to capture through follow-up interviews those ongoing impacts achieved by projects that were sustainable beyond the ARC investments. These job and business creation numbers, therefore, represent a more accurate view of the impact of ARC investment than those developed strictly from close out reports submitted to ARC.

CONCLUSIONS ABOUT OVERALL EI PORTFOLIO PERFORMANCE

The outcome data described in this chapter suggest that ARC investments have been successful in generating jobs and businesses within the region. Actual jobs created and retained and number of businesses served exceeded the projections or goals established by the projects in their funding applications to ARC for the sample of projects; only new business creation numbers fell short of projections.⁸¹ Sample data provide the most accurate view of the impact of ARC investments since they reflect ongoing impacts associated with the projects. Even considering all closed projects (where data are reported at project close out only), ARC investments have created/retained more jobs and served more businesses than projected.

⁸¹ It is not possible within the scope of this evaluation to determine whether the initial business creation goals for the universe of projects were, in fact, realistic. It is possible that projects identified business creation as a goal because it was a reporting metric for ARC, and not because it was a realistic outcome of program investment. A deeper understanding of specific projects would be required to address this issue. However, insights based on our analysis of the sample projects are provided in Chapter 7.

Table 6.6 Job Creation and Retention, New Business Creation, and Businesses Served for the Universe of Projects*

	JOB CREATED ACTUAL	JOB CREATED PROJECTED	JOB RETAINED ACTUAL	JOB RETAINED PROJECTED	NEW BUSINESSES CREATED ACTUAL	NEW BUSINESSES CREATED PROJECTED	BUSINESSES SERVED ACTUAL	BUSINESSES SERVED PROJECTED
Universe (340)								
Total	9,156	16,196	3,022	2,385	1,787	3,207	8,242	12,025
Mean	26.9	47.6	8.9	7.0	5.3	9.4	24.2	35.4
Min	0	0	0	0	0	0	0	0
Max	528	1,000	430	372	264	1,000	2,717	2,500

*These data are drawn from the ARC database and do not reflect additional job creation/retention, business creation and businesses served that may have occurred as projects continued beyond the period of the ARC grant.

Table 6.7. Job Creation and Retention, New Business Creation, and Businesses Served for the Sample of Projects*

	JOB CREATED ACTUAL	JOB CREATED PROJECTED	JOB RETAINED ACTUAL	JOB RETAINED PROJECTED	NEW BUSINESSES CREATED ACTUAL	NEW BUSINESSES CREATED PROJECTED	BUSINESSES SERVED ACTUAL	BUSINESSES SERVED PROJECTED
Sample (88)								
Total	4,332	2,937	1,351	443	1,083	981	2,957	2,757
Mean	49.2	33.4	15.4	5.0	12.3	11.2	33.6	31.3
Min	0	0	0	0	0	0	0	0
Max	758	4	344	100	316	251	643	695

*These data are drawn from follow-up interviews with project leaders and do reflect additional job creation/retention, business creation and businesses served that occurred as projects continued beyond the period of the ARC grant.

CHAPTER 7 SAMPLE PROJECT OUTCOMES AND BROADER POLICY IMPACTS

Chapter 6 reported on select metrics for the entire portfolio of projects in which ARC invested; these data describe one level of impact the EI had on the region. However, entrepreneurship development strategies, including those funded by ARC, are often designed to achieve goals that extend beyond job and business creation. In Chapter 6, the evaluation team identified an underlying set of programmatic goals related to the conceptual model that were attributed to each project type. In reality, each project was designed to address a unique set of goals that were relevant to a particular rural place. To understand the full range of project impacts, and to assess whether these projects were achieving their goals, it was necessary to do a more in-depth evaluation of a sample of projects. This part of the evaluation of ARC's EI has generated a series of findings that fall into two main categories – those related to the outcomes achieved by the representative sample of projects in which ARC invested and those related to the broader policy impacts on the Appalachian region associated with EI's entire portfolio of investments.

IMPACTS OF EI FUNDED PROJECTS

These findings are based on detailed analysis of project outcomes associated with a sample of 88 projects that reflects the diversity, geographic reach, and scope of the EI. As described in Chapter 4, the sample was representative of the universe of projects receiving ARC investments between 1997 and 2005 in terms of both program type and state.⁸²

Quantitative Impacts

To understand the quantitative impacts of ARC investments, the evaluation team began by identifying three classes of metrics that were common to most projects within each program category (Table 7.1). One class included common goals that were articulated in project proposals but for which no outcome measures were provided by project leaders. These are metrics that were believed to be important during the design of the project but, for some reason, no outcome data were collected for most projects in the category. In some cases, it may have been a matter of definition – data collected as part of the project were not defined using the same terminology as project goals. For example, technical assistance providers often stated a goal of “number of businesses served” but actually

⁸² While the sample was judged to be representative, the evaluation team is not suggesting that the quantitative results of this evaluation should be extrapolated to provide an estimate of overall quantitative impacts of the EI. Rather, outcomes associated with these specific projects should be viewed as reflective of what other projects might produce given similar capacity, assets, leadership, etc.

reported “number of clients”. However, in some cases, it appears that data considered relevant when the project was designed were not collected. For example, entrepreneurship education providers often stated a goal of “number of jobs created” but did not report such data as an outcome measure. While these metrics do not provide insight into the overall performance of the EI, they were useful in considering the development of the “best in class” metrics system described in Chapter 9.

Table 7.1. Metrics Common within Program Categories

PROGRAM CATEGORY	PROJECT METRICS INCLUDED AS STATED PROJECT GOALS ONLY	PROJECT METRICS INCLUDED AS MEASURED PROJECT OUTCOMES ONLY	PROJECT METRICS INCLUDED AS BOTH STATED PROJECT GOALS AND MEASURED PROJECT OUTCOMES
Capital Access	- Businesses served - Businesses created	- Businesses created/expanded	- Jobs created/retained
Entrepreneurship Education	- Jobs created		- Number of participants/trainees (both students and teachers) - Number of business starts (student or adult)
Sectors	- Businesses served	- Number of participants/trainees	- Businesses created/expanded - Jobs created/retained
Incubators	- Businesses created - Businesses served	- Number of current clients - Total clients served - Number of graduated firms	- Jobs created/retained - Complete incubator feasibility study
Technical Assistance and Training	- Businesses served - Number of business plans created/assisted - Number of trainings, seminars, conferences	- Businesses expanded - Number of clients - Number of clients retained in service area	- Business created - Jobs created/retained

A second class of metrics included measured and reported project outcomes that did not appear among the goals articulated for most projects in the category. These are metrics that likely appeared relevant only after a project was implemented or that were measured in a way that was different from the original project goals. For example, most capital projects reported the number of “businesses created and expanded” but had set a goal that related only to “businesses created”. And, incubator projects generally reported “graduated firms” as an outcome measure, but did not always include this metric as a project goal. These measures help describe the impact of ARC investments, but are not useful in evaluating the success of projects in achieving stated goals.

The third class of metrics included those that were both stated project goals and measured and reported project outcomes. These metrics provide a means of measuring the “success” of the portfolio of projects included within each program category as will be described in more detail below.

Table 7.2⁸³ provides initial quantitative results for metrics that were common within program categories. These results provide insight into the range of measurable impacts associated with EI investments. Entrepreneurship education projects, targeted to youth, exposed 11,634 students and teachers to entrepreneurship principles. Almost 1,500 entrepreneurs participated in sector-specific activities. Incubators served 475 clients and graduated at least 15 firms. Training and technical assistance were provided to 1,620 entrepreneurs in the region. While these data suggest positive outcomes for EI investments, it is difficult to quantify these results for the entire EI portfolio of investments since metrics varied across project types.

Some measures were found to be common across categories – jobs created/retained and businesses created/expanded.⁸⁴ Table 7.3 provides initial quantitative results for these metrics. These results show that EI investments did produce positive quantifiable results in terms of both job and business creation – metrics most often reported in evaluations of economic development projects. EI investments in sample projects created or retained 5,339 jobs, created 248, expanded 39, and created or expanded 324 businesses.

While the evaluation team cautions against using single performance measures to gauge the success and impact of ARC’s EI, there is value in placing these entrepreneurship development investments within the context of more traditional economic development metrics – specifically, cost per job created/retained and cost per business created/expanded. Table 7.4 presents estimates of these costs for the ARC sample projects as well as for similar types of business development programs. ARC public costs per job or business created compare favorably with program investments made in a variety of similar types of programs. With the

⁸³ Job creation/retention and business creation numbers included in Tables 7.2 and 7.3 in this chapter differ slightly from those reported in Chapter 6, Table 6.7. Data in this chapter are more conservative because some individual projects were excluded from this analysis if they did not report both measured and projected outcomes. In Chapter 6, totals were calculated across the entire sample as a collective and, therefore, no observations were dropped.

⁸⁴ As with any data collection effort, there are caveats that must be stated. In conducting the follow-up interviews with project leaders, most reported jobs created and retained as a single category rather than separate categories. The evaluation team has chosen to report this combined category since it was not possible for most respondents to distinguish between new and retained jobs. In addition, one can consider the impact of a job retained within a community or region as being equivalent, from an economic development perspective, to a new job created. A similar caveat applies to businesses created and businesses expanded. Depending upon program type, some projects reported combined metrics – businesses created and/or expanded – while others, such as incubators, reported only business creation numbers. We have chosen to report these categories as they were reported during interviews with project leaders.

exception of incubator costs, ARC investments produced jobs and businesses at lower public cost than other types of investments. However, it is important to recognize that these ARC figures reflect the cost in terms of ARC dollars and not total dollars invested in these projects. Given that sample projects leveraged \$1.20 in private investments per \$1 of ARC investments, these costs are understated by about half. However, even inflating these cost figures to reflect total investments shows that ARC investments compare well against similar investments. As importantly, these job creation cost figures are relatively small compared to the average cost per job created via industrial recruitment strategies which can range anywhere from \$7,000-\$15,000 per job on an annual basis.⁸⁵

While positive, these metrics alone cannot answer the question of whether EI projects have achieved their objectives. The evaluation team considered two factors in evaluating the overall success of the initiative:

- Whether project leaders considered the project to be successful
- Whether measured outcomes exceeded stated goals (for quantitative measures).

To assess the first factor, project leaders were asked whether they considered the project a success, whether the project had met stated objectives, and whether the project was sustainable over time, i.e., beyond the ARC grant period. The evaluation team felt justified in using this key informant information since there was no compelling reason why project leaders would not be objective in evaluating success. For most projects, ARC funding had ended and project leaders had nothing to gain by being overly optimistic about project results. In addition, ARC has not continued to fund the EI as a separate initiative, so project leaders had no incentive to overestimate impacts. Finally, project leaders were informed that the evaluation was about the overall impacts of EI projects and not about the individual performance of any single project. In addition, during the interviews, project leaders shared information about both the successes and failures associated with their activities.

Table 7.5 shows that, overwhelmingly, project leaders considered projects to be successful and to have achieved program objectives, as determined through follow-up interviews. Project leaders generally defined success in terms of accomplishing the goals set out at the beginning of the project. However, they were also likely to consider a project that had achieved some, but not all, of its objectives as being successful. And, they were less concerned about the extent to which a goal was met, as long as they saw some accomplishment toward the goal. For example, oftentimes a project manager would consider a goal of “creating 50 jobs” as being met if they had created some but not all of those jobs.

⁸⁵ Peter Fisher, “The Fiscal Consequences of Competition for Capital,” Reining in the Competition for Capital, Ed. Ann Markusen (Kalamazoo, MI: WE Upjohn Institute, 2007).

If project goals are used as a benchmark for assessing project success, it becomes important to assess whether project goals, as initially defined, were attainable. That is, were project goals reasonable and realistic? Unfortunately, it is not possible through this ex post evaluation to determine on a project by project basis whether goals were attainable. However, interviews with project leaders suggest that project goals did change over time, often being revised as the project was implemented and the overall direction refined. For instance, some project leaders indicated that they learned over time that their goals had been too ambitious and that they did not realize how difficult implementing the project would be. In addition, there were qualitative results that contributed to the project leader's view that the project was successful, but which did not relate to the original goals of the project. In both cases, project leaders had legitimate reasons for declaring the project a success, based on their personal experience and understanding of the broad set of impacts achieved.

Project leaders were generally objective in identifying the sustainability of their projects – defined simply as whether or not the project continued beyond the period of the ARC grant. It is important to recognize that sustainability was defined in terms of the project itself and not in terms of the businesses or jobs that were created as a result. Again, there appeared to be no incentive for these leaders to overestimate sustainability and the responses to these questions suggest that project leaders evaluated sustainability more critically than they did success. Even when some part of a project proved to be sustainable, project leaders most often defined the project as “not sustainable” if the most substantive parts of the project did not continue.⁸⁶

While the perception of project leaders is an important factor to consider in evaluating the success of the EI, follow-up interviews also generated data on both stated goals and measured outcomes for a set of metrics. These metrics provide quantitative information to assess the performance of the initiative. While individual projects experienced varying levels of success in achieving stated goals, the evaluation team chose to view the success of the EI from a portfolio perspective, i.e., data are reported for each program category rather than for each individual project within that category. From this portfolio perspective, it is clear that the initiative was successful in achieving most of the common goals identified for each program category.

Table 7.6 shows that for six of nine metrics, the stated goal was exceeded or met. For the other three variables, the stated goal was not met. However, it is useful to consider each of these variables in more detail. For entrepreneurship education projects, a stated goal was new business starts. Given our original conceptual model, the primary programmatic goal for these types of projects was to get more entrepreneurs into the pipeline – to build entrepreneurial skills in

⁸⁶ It is important to note that most of the projects that were sustainable beyond the ARC grant continued to rely on local, state, foundation and other support. Very few of these projects were sustainable defined as producing income sufficient to cover the operating costs of a program.

young people and expose them to entrepreneurship as a potential career path. The literature is quite clear that entrepreneurship education for youth is not about creating businesses in the short run. It is about inspiring young people to develop skills that can lead them toward entrepreneurship in the future. For ARC's EI, metrics were reported for entrepreneurship education projects that lasted from one to four years, as described in Chapter 6. Creating fewer new business starts than projected may have more to do with a misalignment of goals and metrics than with lack of success for this set of programs. Following students who participated in these ARC funded projects as they advance through school and into a career path would likely generate more accurate metrics on business creation than could be expected from this initial, short-term glimpse of project impacts. Unfortunately, none of these projects provided that long-term follow up.

In terms of incubator performance, one can argue that incubators are established to help create more informed and more highly skilled entrepreneurs whose businesses, as a result are more productive and more likely to remain in the region. These goals could very well be achieved with no impact on job creation, at least in the short run. In addition, the range of activities included in the incubator program category – from grants for feasibility studies to implementation grants – may skew job creation figures. Capacity building projects such as an incubator feasibility study are unlikely to have any measurable impact on job and business creation.

Similarly, one can argue that technical assistance and training projects serve to create better skilled and informed entrepreneurs who, in turn, improve the performance of existing businesses. While some aspiring entrepreneurs may create businesses as a result of the technical assistance and training they receive, new business creation is not the primary goal of many technical assistance providers, such as some Small Business Development Centers that work mostly with existing business owners.

The leveraging of private investment is a final quantitative measure that tracks local support of entrepreneurship. ARC investments were described by key stakeholders as catalytic. The ability to attract private investment, i.e., leverage, as a result of ARC investment is one measure of the impact that these funded projects have had on the region. Table 7.7 presents actual and projected total private leverage for all ARC projects and sample projects. Projected leverage includes the private investment associated with both closed and open projects, suggesting the longer term impact associated with ARC investments. For the ARC portfolio as a whole, private leverage rates range from 1.7:1 (actual) to 2.6:1 (projected). For the sample, leverage rates range from 1.2:1 (actual) to 1.4:1 (projected).⁸⁷ Collectively, ARC and leveraged private investments have

⁸⁷ The discrepancy in leveraging rates between the universe of projects and our sample results from four revolving loan fund projects that were not included in the sample but leveraged almost \$32 million in private investment.

had an impact by creating the quantitative and qualitative impacts described in this chapter.

Conclusions Regarding Quantitative Impacts

Based on analysis of quantitative metrics for the evaluation sample, ARC's Entrepreneurship Initiative has had an impact on the region. Collectively, sample projects created or retained over 5,300 jobs and created or expanded over 600 businesses. While it is not possible to determine definitively whether these jobs would have been created without ARC investment, project leaders reported these outcomes and indicated that ARC investment was critical to achieving these impacts.

Business and job creation numbers tell only part of the story. Over 11,500 students and teachers participated in or received training from the sample entrepreneurship education projects in which ARC invested. Almost 1,500 entrepreneurs participated in sector-focused activities. Another 1,620 received training and technical assistance, while 475 were served by incubators. Every dollar invested by ARC in these sample projects leveraged \$1.20 in actual private investment and is projected to leverage \$1.40 private dollars for every ARC dollar invested when project investments are complete. And, project leaders and others in the region identified a number of qualitative impacts from these investments that are having far reaching consequences for the Appalachian region. In addition to supporting the conclusion that the EI has had an important positive impact on the region, these observations also suggest that a portfolio of programs like ARC's EI requires a "portfolio of metrics" to accurately tell the story of program impact.

Table 7.2. Quantitative Results for Metrics Common within Program Categories⁸⁸

CAPITAL ACCESS		ENTREPRENEURSHIP EDUCATION		SECTORS		INCUBATORS		TECHNICAL ASSISTANCE AND TRAINING	
Metric	#	Metric	#	Metric	#	Metric	#	Metric	#
- Businesses created/expanded	223	- # of participants/trainees (students or teachers)	11,634	- # of participants/trainees	1,497	- # current clients	114	- # business expanded	39
- Jobs created/retained	1,229	- New business starts (student or adult)	85	- Business created/expanded	101	- Total clients served	475	- # of clients	1,620
				- Jobs created/retained	994	- # graduated firms	15	- # of clients remaining in service area	114
						- Jobs created/retained	130	- Businesses created	163
						-Complete incubator feasibility study	3	- Jobs created/retained	2,986

Table 7.3. Quantitative Results for Metrics Common across Program Categories

PROGRAM CATEGORY	JOBS CREATED/RETAINED	BUSINESSES CREATED	BUSINESSES EXPANDED	BUSINESSES CREATED/EXPANDED
Capital Access	1229	---	---	223
Entrepreneurship Education	---	85	---	---
Sectors	994	---	---	101
Incubators	130	---	---	---
Technical Assistance and Training	2986	163	39	---
TOTAL	5339	248	39	324

⁸⁸ Only those metrics that were reported as project outcomes are included in this table.

TABLE 7.4. COMPARISON OF COST PER JOB CREATED/RETAINED AND BUSINESS CREATED/EXPANDED – ARC SAMPLE PROJECTS AND OTHER REPORTED PROJECTS

ARC SAMPLE PROJECTS ^A	EDA PROJECTS	PENNSYLVANIA SMALL BUSINESS DEVELOPMENT CENTERS ^G	INCUBATORS ^H	ENTERPRISE FACILITATION IN KANSAS ^I	SBA MICROLOAN PROGRAM ^J
\$ per job created/retained: Capital Access - 624 Sectors - 732 Technical Assistance - 579 Incubators - 3,994	\$ per job created: Revolving Loan Funds ^b - 936 Rural Projects ^c - 6,157 Urban Projects ^d - 2,982 Public Works ^e - 4,857 Defense Adjustment ^f - 12,000	\$ per job created - 929 \$ per business created - 3,300	\$ per job created - 1,100	\$ per job created - 2,400 – 7,800	\$ per job created - 4,568
\$ per business created/expanded: Capital Access - 2,988 Sectors - 3,759 Technical Assistance - 7,818					

^aFigures are public cost per job, counting ARC project investments only, not total project investment including leveraged private funds.

^bFigures are for EDA project investments only, not total project investment. Source: Robert W. Burchell, EDA RLFs: Performance Evaluation (Washington, DC: U.S. Economic Development Administration, 2002).

^cSource: Amy K. Glasmeier, Cost per Job Associated with EDA Investments in Urban and Rural Areas (Washington, DC: U.S. Economic Development Administration, 2002).

^dSource: Glasmeier (2002).

^eSource: Robert W. Burchell, EDA Public Works Program: Performance Evaluation (Washington, DC: U.S. Economic Development Administration, 1997).

^fSource: Robert W. Burchell, EDA Defense Adjustment Program: Performance Evaluation (Washington, DC: U.S. Economic Development Administration, 1997).

^gSource: Pennsylvania Small Business Development Centers, "Return on Investment: 2005" 13 December 2007 <<http://www.pasbdc.org/downloads/pdf/impact.pdf>>.

^hSource: Lawrence Molnar, et al., Impact of Incubator Investments (Athens, OH: National Business Incubation Association, 1997).

ⁱSource: Don Macke and Deborah Markley and Erik Pages, "Enterprise Facilitation[®] in Kansas: Lessons and Recommendations," RUPRI Center for Rural Entrepreneurship, August 2005.

^jFigures include actual dollars loaned plus cost of technical assistance per job created. Source: Association for Enterprise Opportunity, Testimony by Kevin Kelly, Managing Director for Policy and Advocacy, before the House Committee on Small Business, September 27, 2007.

Table 7.5. Project Leaders' Perceptions of Project Success and Sustainability

QUESTION	# RESPONDING "YES"	% RESPONDING "YES"
Did you think the project was a success?	87	89.7
Do you feel you achieved the objectives set forth for this project?	85	92.9
Has the project continued after ARC funding ended?	86	79.1

Table 7.6. Measured Success of ARC's Entrepreneurship Initiative Portfolio

PROGRAM CATEGORY	STATED GOAL	MEASURED OUTCOME	PERFORMANCE (=/-/+)
Capital Access	79 jobs created/retained	1,229 jobs created/retained	+
Entrepreneurship Education	4,483 participants/trainees (students or teachers)	11,634 participants/trainees (students or teachers)	+
	141 new business starts	85 new business starts	-
Sectors	38 businesses created/expanded	101 businesses created/expanded	+
	438 jobs created/retained	994 jobs created/retained	+
Incubators	162 jobs created/retained	130 jobs created/retained	-
	3 completed incubator feasibility studies	3 completed incubator feasibility studies	=
Technical assistance and training	177 businesses created	163 businesses created	-
	1,295 jobs created/retained	2,986 jobs created/retained	+

Table 7.7. Actual and Projected Leveraged Private Investment – Universe and Sample Projects

	ARC \$	ACTUAL LEVERAGED PRIVATE \$	PROJECTED LEVERAGED PRIVATE \$
Universe	42,971,688	72,802,868	109,879,064
Sample	12,847,733	15,856,275	18,596,174

QUALITATIVE IMPACTS

There is an emerging consensus among practitioners, particularly in rural places, that entrepreneurship development is a long-term economic development strategy. It requires a cultural shift from a mindset of dependency to one of self-sufficiency. In other words, this requires a change in the view that growth will only come from decisions and investments that are controlled from outside the community to one that growth will come from encouraging homegrown entrepreneurs and the businesses they create. ARC's Entrepreneurship Initiative was designed to encourage this culture change and to build capacity within the region to become more entrepreneurial. One might expect, therefore, that the outcomes achieved through EI investments would extend beyond job and business creation. Interviews with project leaders and stakeholders across the region identified a set of cross-cutting qualitative outcomes, described below, that suggest a much broader impact on the region than that described through the analysis of quantitative metrics.

- **ARC investments raised the profile of entrepreneurship as a development strategy, helping to change the mindset within the region.** The investments made by the EI helped to raise awareness of entrepreneurship and to give credibility to entrepreneurship as an economic development approach. The EI projects “opened people’s eyes to other possibilities” and showed that there was “more to economic development than infrastructure”. According to one interviewee, the “most effective part was the fact that ARC recognized entrepreneurship as economic development. That, in itself, was a major step.”
- **ARC investments represented “but for” money in the region, providing start-up funding for innovative projects.** The EI projects often represented “outside the box” thinking or demonstration projects that would not have gotten off the ground “but for” the ARC investment. In some places, these projects served to prove a concept or approach that then attracted additional investment. ARC investments were variously described as being “catalytic” or “foundational” to the efforts to encourage entrepreneurship in the region.
- **ARC investments leveraged additional resources that helped some projects achieve scale and impact.** As demonstrated in Table 7.7, ARC’s EI portfolio leveraged significant private investment. To the extent that these private funds represented resources new to the region, the impact would indeed be positive. It is possible, however, that some of these investments represent a reallocation of capital from one use to another in the region. However, in the case of capital access, ARC investment leveraged additional resources that helped to create an industry, in this case, the venture capital industry in the region.
- **ARC investments facilitated networking and collaboration among practitioners.** The increased focus on entrepreneurship helped to reinforce that practitioners were doing “good work” and served to connect

both people and organizations in broader regional partnerships. The investment provided support and encouragement to what one interviewee described as a “fragile community” of practitioners engaged in entrepreneurship development. Practitioners realized that they had assets, skills and opportunities to combine that would help them achieve self-sufficiency. As one interviewee noted, “It’s amazing what we can get done here.”

- **ARC investments helped to change people’s attitudes, particularly among youth and their teachers.** Project leaders noted increased enthusiasm and a change in attitude among young people in particular. These changes were described in a number of ways including increased self esteem, improved performance in school, and a new “entrepreneurial mindset” for students; increased enthusiasm and interest in pursuing their own entrepreneurial aspirations among teachers.

These qualitative insights are drawn from interviews with key stakeholders in the region. It was beyond the scope of this evaluation project to conduct the in-depth field work required to accurately verify these outcomes. However, these recurring themes were heard across our interviews, from people representing different states and organizations – non-profit and governmental – and engaged in different aspects of entrepreneurship development – from providing capital to educating youth. A more rigorous assessment of these qualitative impacts would be possible by designing a participatory evaluation approach as part of project design. The challenges and opportunities associated with this approach are discussed in Chapter 9 as part of the “best in class” metric system.

Conclusions Regarding Qualitative Impacts

By identifying the qualitative outcomes associated with ARC’s EI investments, a more nuanced, in-depth picture of the impact on the region is obtained. The EI has served to “change the conversation” – to elevate entrepreneurship as a key component of economic development in the region. The beginning of a culture shift is evident at the community level, where EI projects have been having demonstrable quantitative and qualitative impacts. There is less evidence that these impacts are translating into policy change at the state level, suggesting the need to explore the lessons learned from the EI experience for both entrepreneurship development, generally, and the design and management of future ARC entrepreneurship investment activities.

What do these qualitative impacts suggest about the metrics needed to measure the broad set of outcomes entrepreneurship investments may have? The observation of these impacts supports the need for using a broad set of metrics to accurately depict project outcomes. These qualitative outcome measures could include:

-
- Public investment (\$) in entrepreneurship development activities (pre- vs. post project investment)
 - Private investment leveraged (\$) as a result of project investment in entrepreneurship development
 - Perceived change in community/regional support for entrepreneurship development (as measured through pre- and post-investment community surveys)
 - Increased collaboration among support providers (as measured by the number of partners contributing resources to entrepreneurship development).

CHAPTER 8

LESSONS LEARNED FROM THE ARC ENTREPRENEURSHIP INITIATIVE EXPERIENCE

When ARC first announced the Entrepreneurship Initiative in 1997, ARC staff and its state and local partners had a very limited base of experience and effective practices upon which they could build. Yet the EI investments were not a completely new thing. In fact, many EI projects had similarities with earlier ARC investments in capacity building or sector development strategies. In addition, other small business development programs (such as the national Small Business Development Center initiative) or state business support programs (such as Pennsylvania's Ben Franklin Partners effort) offered useful ideas and lessons learned.

While these earlier programs provided some useful lessons, none of these predecessors sought to combine the objectives of supporting traditional economic development goals, such as new business starts, with a wider mission of knitting entrepreneurial development into the mainstream of economic development thinking and practice in Appalachia. As a result, the ARC team was, in some sense, building the road as they traveled it.

Through the course of the EI, ARC and its program partners learned a great deal about how to do entrepreneurial development right. These lessons were sometimes learned through the school of hard knocks, as once promising initiatives failed to pay the expected dividends. In other cases, successful pilot projects were replicated throughout Appalachia and throughout the US. For example, ARC's early investments in developing alternative equity capital sources were one stimulus for creation of the New Markets Venture Capital initiative and New Markets Tax Credit program which now supports more than \$19 billion in investments in low-income communities.

Throughout the evaluation process, the research team has focused on gathering these "lessons learned" as means to capture established best practices, exemplary program models, as well as informal and tacit learning that has occurred through the life of the EI program. These lessons learned should inform future ARC investments (in entrepreneurial development and elsewhere) as well as other federal, state, and local efforts to promote entrepreneurship.

The compiled "lessons learned" generally fall into two broad categories. One set of lessons applies to those actively engaged in the practice of entrepreneurship development – people who are implementing entrepreneurship education, training and technical assistance, capital, incubator, and networking or sector specific initiatives in their communities, regions or states. The other set of lessons applies more directly to the design and implementation of ARC's Entrepreneurship Initiative and would be most useful to those seeking to create similar or additional region-wide initiatives.

LESSONS FOR PRACTITIONERS – WHAT WORKS IN ENTREPRENEURIAL DEVELOPMENT

Nearly all of the interviewees offered thoughtful lessons learned based on their participation in EI. Because EI was something of a “new thing” for many state and local partners, it forced many project leaders to think differently and move out of their traditional comfort zones. As the projects progressed, the project teams evolved in their thinking and became more sophisticated in understanding the key ingredients for a successful regional entrepreneurship strategy.

Project leaders and other regional stakeholders emphasized several key lessons learned. If one were concocting a recipe for successful regional entrepreneurship projects, the following ingredients would be required. Organizations with these attributes tended to be more successful than their counterparts who lacked some or all of the necessary key ingredients. These exemplary practices related to program and community leadership, a program’s management, goals and objectives, and a program’s outreach efforts (Table 8.1). Additional information on each of these factors is provided below.

Table 8.1. Lessons Learned for Practitioners from Evaluation of ARC’s Entrepreneurship Initiative

LESSONS FOR PROGRAM LEADERSHIP	LESSONS FOR PROGRAM MANAGEMENT	LESSONS FOR PROGRAM OUTREACH
<p>Successful entrepreneurship initiatives had sparkplugs or local champions that provided leadership for these efforts.</p> <p>Local capacity was a key to success.</p>	<p>Program self-sufficiency (sustainability) and success went hand in hand.</p> <p>Entrepreneurship development was recognized to be a long-term process.</p> <p>Successful projects altered their goals and approaches as conditions warranted.</p>	<p>Partnerships and collaborations were important to success.</p> <p>Successful projects celebrated and shared the story of their success.</p>

Lessons for Program Leadership

Successful entrepreneurship initiatives had sparkplugs or local champions that provided leadership for these efforts.

The need for committed local leadership is a critical requirement for success with regional entrepreneurship efforts – just as it is with other forms of economic development. The role of this local “sparkplug” became especially important in the EI since it was, in part, designed as a response to the decreasing dividends generated by traditional economic development strategies based on business recruitment and attraction. Changing thirty years of economic development

practice would not occur overnight. In many communities, the concepts of entrepreneurial development were not well understood or were resisted by those who were comfortable with the status quo as the way things had always been done.

In the midst of this environment where the new concepts were poorly understood or discounted, strong leadership was required. Entrepreneurial development needed a strong “brand” and a compelling vision that would capture the imagination of local leaders and residents. In most cases, this vision was generated by a local champion who came to embody the new approaches and the new vision for the region.

These leaders came from non-profit organizations, community colleges, schools, economic development organizations, and other institutions. They included people who were visionaries and saw the potential for entrepreneurship to be a force for change in their communities. They embodied the characteristics of entrepreneurs themselves – they saw opportunities, marshaled resources, were flexible, and determined and committed to creating a new economic development path in their part of Appalachia.

Abingdon, Virginia’s Appalachian Sustainable Development (ASD) and its leader, Anthony Flaccavento, exemplify this pattern.⁸⁹ Founded in 1995, ASD seeks to promote sustainable farming and forestry in Appalachian regions of Virginia and Tennessee. Southwest Virginia had always been a center of agriculture and forestry, but these industries, especially forestry, had never previously focused on sustainable practices. And, for many local leaders, environmentalism and economic development were opposing forces. In their view, environmentalists were opposed to business and insufficiently concerned about strengthening the local economy.

Flaccavento and ASD sought to redefine the debate by highlighting the tremendous entrepreneurial opportunities presented by value-added agriculture and forestry. They educated farmers about sustainable forestry practices and enlisted their support, so that instead of simply harvesting logs, local entrepreneurs could sustainably gather the wood, process the lumber close to home and use it in value-added products like flooring and wood trim. The Appalachian Sustainable Woods Processing Center, created with EI funds, became a local symbol for home-grown initiatives. It combined exciting entrepreneurial opportunities with a respect for home-grown traditions and industries, and fostered a growing belief throughout the region that sustainable business practices can and do work. In 2001, ASD created and is actively building its own Sustainable Woods product line⁹⁰ to sell wood products that are environmentally friendly.

⁸⁹ An interview with Anthony Flaccavento can be found at PBS NOW *Enterprising Ideas* website, <<http://www.pbs.org/now/enterprisingideas/asd.html>>.

⁹⁰ To learn more, visit <<http://www.asdevelop.org/sustainablewoods2.html>>.

Local capacity was a key to success.

ARC has a long history of investing in local community capacity building,⁹¹ and a number of the EI investments sought to develop local capacity for supporting entrepreneurs. For example, TEAM Pennsylvania sought to seed entrepreneurial assistance networks across the state. These networks would be affiliated with the seven economic development districts located within ARC's jurisdiction. This effort ultimately generated mixed results. Several of the networks jelled, and one effort (the Northeast Pennsylvania Entrepreneurial Alliance)⁹² received a national award. Yet, few of these networks are now in operation and their role in supporting local entrepreneurs was limited.

The TEAM Pennsylvania experience was fairly typical for EI. Because of limited resources, EI faced significant challenges in creating new community capacity where none had previously existed. However, one case where EI contributed to building capacity is Tech 2020 in Tennessee. Tech 2020 was initiated in 1993 to build on the unique regional assets in eastern Tennessee and create a high tech industry. ARC made a series of investments totaling \$1.2 million over five years to build the capacity of Tech 2020, primarily in the area of venture investing. Tech 2020 has grown over time into a significant economic development organization in the state and the region, playing a major role in establishing the Southern Appalachian Fund, one of the first New Markets Venture Capital Companies making investments in Tennessee, Kentucky and Appalachian Georgia and Mississippi.

When strong organizations with existing capacity were already in place, EI investments had a catalytic effect. In most of the successful cases, a community was home to an organization with a strong track record in other related fields of activity and this capacity was leveraged in support of entrepreneurship development. For example, the Kentucky Highlands Investment Corporation (KHIC) had been supporting community development efforts in Eastern Kentucky since 1968.⁹³ KHIC began as a traditional community development organization but its mission has evolved over time. Over the years, it has become an intermediary for many Federal lending programs, such as SBA and USDA, and had thus developed extensive in-house financial expertise and capacity. At the time of the EI's introduction, KHIC was seeking to increase the supply of seed-

⁹¹ For an evaluation of these projects, see Brian Kleiner, et al., Evaluation of The Appalachian Regional Commission's Community Capacity-Building Projects, Final Report to the Appalachian Regional Commission, July 2004, xi.

⁹² National Association of Development Organizations (NADO) Research Foundation, Business Not as Usual: Regional Development Organizations Promote Rural Entrepreneurship (Washington, DC: NADO, 2002), <<http://www.nado.org/pubs/pioneer02.pdf>>.

⁹³ To learn more, see Deborah Markley and David Barkley, Development of an Entrepreneur Support Organization: The Case of Kentucky Highlands Investment Corporation, RUPRI Center for Rural Entrepreneurship, Research Case Studies Series No. 1, March 2003, <<http://www.ruraleship.org/content/pdf/KHICfinalstudy.pdf>>.

stage equity in the region. Thanks to EI investments, KHIC was able to branch out into these new related markets. Today, the Southern Appalachian Fund, backed in part with EI dollars, manages \$12.5 million that can be invested in local firms seeking early stage equity capital. The success with which the Southern Appalachian Fund emerged as a developmental venture capital force in the region was due, in part, to the strong KHIC base upon which it was built.

Lessons for Program Management

Program self-sufficiency (sustainability) and success went hand in hand.

While all ARC grantees seek to be self-sustaining, effective EI projects viewed ARC funds as start-up investments that were not an end in themselves. Instead, ARC dollars were used to jump-start programs that would rise or fall based on how they performed in the marketplace – just like any other entrepreneurial venture. Projects that had a goal of becoming self-sufficient appeared to create better outcomes and stronger sustained efforts. Leaders of these projects pursued sustainability by creating partnerships and finding resources to continue to build the program beyond the ARC grant. Creating sustainable economic development programs takes time; this lesson suggests that making self-sufficiency an explicit project goal may result in greater priority being placed on its achievement.

As a group, the EI's Capital Access projects performed best in terms of leveraging outside investments to have a sustainable impact on the region. As described above, a developmental venture capital industry was spawned through the efforts of organizations funded, in part, by ARC. KHIC and Tech 2020 were able to launch the Southern Appalachian Fund (SAF) as one of six New Markets Venture Capital companies in the country through initial support provided by ARC. SAF received \$2 million in New Market Tax Credits in 2002, and was able to raise a total of \$12.5 million from investors, including the Tennessee Valley Authority, foundations and a number of banking institutions. The principals behind SAF credit ARC with its creation. One noted that if EI's director "had not been creative, Southern Appalachian Fund would not have been created." ARC was also an early investor in Meritus Ventures, a \$36 million Rural Business Investment Company established in 2002. As with SAF, Meritus brings a much needed source of equity capital to support expanding companies in the region. Among Meritus' investors are regional entities, such as TVA and the University of Kentucky, private financial institutions, and some high net worth individuals. Both SAF and Meritus are combining access to capital with business support services, funded in part by the U.S. Small Business Administration and U.S. Department of Agriculture.

Yet attracting new money is not the only measure of an effective and sustainable program. Sustainability can also be generated when programs succeed in attracting new partners, building local collaboration, and generating energy and

buzz about local community-building efforts. The development of Athens, Ohio's Dairy Barn Arts Center reflects this pattern. Thanks to a \$50,000 EI grant, the Dairy Barn Southeast Ohio Arts Center was able to build a shop to sell artwork and crafts produced by local craftspeople. The shop soon turned a profit, becoming self-sustaining and providing valuable income to approximately 100 local artisans. The shop has also stimulated new partnerships with local schools, and has generated buzz about the Arts Center's other projects. From an entrepreneurship standpoint, the project has also helped educate local people about the potential for "self-sufficiency through art."

The Clinch-Powell Community Kitchens (in Treadway, TN) pursued a similar path to sustainability. ARC's investments aided the kitchen in purchasing some new equipment, but more importantly, program managers invested these dollars to improve marketing capabilities for incubator clients. As the Community Kitchen has grown, it has developed close partnerships with the Clinch Appalachian Artists Cooperative. As artists and food producers have built partnerships, they have entered new markets with new combined products such as gift baskets. Many of these products are now sold via the Appalachian Spring Cooperative, a joint marketing effort designed to promote family farms and local artisans.

Entrepreneurship development was recognized to be a long-term process.

It takes years to produce the culture change that is a desired outcome of many entrepreneurship development efforts. Successful project leaders recognized the long-term nature of their endeavors and concentrated on developing the staying power – resources, leadership, organizational capacity, community support – needed. As one interviewee noted, "It usually takes longer to reach the critical mass (and resultant job and business creation) than you would expect." And, another noted the need to "be patient, education projects don't have immediate results."

By definition, the EI's entire portfolio of youth entrepreneurship education projects reflects this perspective. These projects rarely assessed their performance based on traditional economic development measures of job creation or leveraging of new investments. Appropriately, they measured progress according to unique measures, such as the number of schools offering entrepreneurship training or students' increased awareness of business concepts.

ARC sought to publicize the best regional youth entrepreneurship initiatives through its sponsorship of the 2002 and 2003 Appalachian Youth Entrepreneurship Springboard Awards (Table 8.2).⁹⁴ Twelve different programs were honored for their ability to teach youth about the key components of entrepreneurship, to develop clear and measurable outcomes that provided value

⁹⁴ See Appalachian Regional Commission, Appalachian Youth Entrepreneurship Springboard Award: 2002 and 2003 Winners, 2004, <<http://www.arc.gov/index.do?nodeId=1994>>.

to the local community, and to create models that could be sustained at home and replicated elsewhere.

The Springboard Award winners were located across the region, and were based at a variety of institutions including public schools, non-profits, and vocational training centers. Walhalla High School (in Walhalla, SC) was one of the first Springboard awardees. The Walhalla School District requires all ninth graders to be exposed to entrepreneurship training in their social studies class. When these students enter high school, they can take two separate entrepreneurship-related courses where they are introduced to basic business concepts and move on to start their own businesses. Each year, Walhalla High School students start dozens of new school-based companies. In 2007, a local student won the prestigious International Young Entrepreneur of the Year Award from the National Foundation for Teaching Entrepreneurship.

Other Springboard winners sought to use entrepreneurship education as an effort to slow the out-migration of area youth. Virginia's Lonesome Pine Office of Youth used ARC funds to support the Stay for Life Project at Bush Mill. This effort linked local youth with area volunteers who rebuilt and refurbished a local stone mill that is now used to produce flour and corn meal. Area youth continue to operate the mill and sell its products, and point to the effort as a great means to learn about entrepreneurship and about the history of their community. More importantly, they were exposed to the idea that they can enjoy a successful economic future without having to leave their hometowns.

Table 8.2. Springboard Award Winners – 2002 and 2003

2002 WINNERS	2003 WINNERS
Estill County High School, Irvine, Kentucky	Hale County Technology Center, Greensboro, Alabama
Tupelo Middle School, Tupelo, Mississippi	Monroe County High School, Tompkinsville, Kentucky
ACEnet, Athens, Ohio	Ripley Union Lewis Huntington High School, Ripley, Ohio
Walhalla High School, Walhalla, South Carolina	East Stroudsburg High School-North, Dingmans Ferry, Pennsylvania
Lonesome Pine Office on Youth, Big Stone Gap, Virginia	Carroll County Public Schools, Hillsville, Virginia
Randolph County Vocational Technical Center, Elkins, West Virginia	United Technical Center, Clarksburg, West Virginia

Additional information about the Springboard Awards can be found on the ARC website at <http://www.arc.gov/index.do?nodeId=1994>.

In addition to the Springboard Awards, ARC made investments in other youth education programs that have proven to be sustainable. ARC invested in a program run by the University of Alabama to bring entrepreneurship education to a 10-county region in the state. The program was successful in using the REAL curriculum to train students and to build school-based enterprises. The program continued beyond ARC funding, expanding to 14 counties. Many of the students were at risk and according to the project leader some businesses were started as a result of the training. In another case, ARC funded the Ohio-West Virginia YMCA to use REAL training in a summer camp for youth. Two of the important outcomes identified were the engagement of schools, communities and an economic development district in the project and the change in attitudes seen in the young people for participated in the camps.

While ARC's investment in youth entrepreneurship programs and approaches reflects a concern for changing the culture of the region, it was less apparent that portfolio investments were made with explicit attention to the development of entrepreneurs over time. Many of the incubation and TA projects measured outputs such as businesses served rather than measuring the transformation of entrepreneurial skills or the outcomes associated with the projects, such as improved business performance. Insights gained from the implementation of Lyons and Lichtenstein's Entrepreneurial League System[®] approach suggest that the long-term transformative impact of entrepreneurship investments depends, in part, on the development of entrepreneurs over time.⁹⁵

Successful projects altered their goals and approaches as conditions warranted.

The EI was the first regional effort to encourage entrepreneurship development and investments were made when the field was relatively new. Project leaders were plowing new economic development territory and many projects were considered demonstrations. Effective project leaders adjusted their approaches to reflect changing demand and to overcome unexpected obstacles. As a result, these projects achieved outcomes that were positive but, in many cases, different from what was originally intended.

Georgia's Appalachian Community Enterprises' (ACE) experience during the EI may be instructive. ACE was established to help address a pressing capital gap facing many small businesses in North Georgia. As ACE developed its microloan program, it soon discovered that simply making new loan funds available was an insufficient response to the challenges facing the region's small firms and aspiring entrepreneurs. Many local residents lacked money skills or suffered from poor credit ratings that made it nearly impossible for them to do business with local banks. As a result, ACE quickly geared up its financial literacy education efforts. Programs such as ACE's Money Camp for Grown-Ups are now used to help residents learn personal money management skills.

⁹⁵ Gregg A. Lichtenstein and Thomas S. Lyons (2001).

As ACE has introduced new programs, it has also begun to enter new markets. North Georgia is in the midst of a massive influx of Latino immigrants who are changing the face of many of the area's small towns. These new residents are also very interested in starting new businesses, and ACE has now begun an aggressive effort to provide services to the region's Hispanic entrepreneurs.

In Coeburn, Virginia, the initial intent behind an EI grant was to provide training to low-income people to become crafters. However, according to the project designer, "We learned that you can't teach people to be artists and crafters unless they want to be." But through the exploration associated with the ARC grant, they learned that a significant number of musicians were seeking ways to expand their music businesses. The project leader credits the EI with helping the local area spawn a popular spot for bluegrass and country music. Now people of all ages are participating in the Friday night concerts and Thursday evening jam sessions. Crowds are coming from miles around to dance, eat, and enjoy affordable, excellent entertainment. The community center originally started through the ARC grant is a vintage downtown building that formerly housed Lay's Hardware. It is being conserved through income generated and utilized as a mecca for music, the arts, and various art-related training sessions. They are a site for, and one of the progenitors of, *The Crooked Road*, a 13-county effort to highlight and market country music venues throughout Southwestern Virginia.

Lessons for Program Outreach

Partnerships and collaborations were important to success.

Successful projects marshaled resources by forming partnerships and collaborating with other organizations to share resources and build capacity. They leveraged assets and avoided duplication of efforts. These partnerships also facilitated networking among service providers, creating a better environment for entrepreneurs.

Nearly all of the EI projects were built on partnerships of some sort. In fact, partnerships – at least in the form of matching dollars from state or local sources – were a requirement of all EI grants. But, several EI projects developed exemplary collaborations that still exist today. For example, ARC invested \$100,000 to support a regional biotechnology initiative in western North Carolina. This project linked Advantage West (the regional development agency), NC Bio, Buncombe County, Western Carolina University, and several other key players. These funds allowed Advantage West to hire a full-time regional biotech coordinator, and to also develop biotech incubator space at Ashe-Buncombe Technical Community College. They also developed a region-wide biotech steering committee that still operates today. This effort is now an integral part of a statewide North BioNetwork, with Ashe-Buncombe College serving as headquarters for the state's BioNetwork BioBusiness Center.

Another example of regional collaboration can be found in the Start Smart initiative funded by the EI in a nine-county region of Appalachian Tennessee. Funding was provided to the Southeast Local Development Corporation to provide technical assistance and training to entrepreneurs in these rural counties – a region of the state that did not have a critical mass of business resources. This initiative built on prior successful work by the Southeast Women’s Business Center and project leaders were able to leverage this reputation to get buy-in for the ARC-funded project. However, collaboration was not achieved through reputation alone. The Women’s Center program director identified all the business resource providers who served the region and personally met with each of them. By understanding who the potential partners were – their strengths and potential weaknesses – the director leveraged significant resources in support of entrepreneurs throughout the region and designed a value-added program.

Successful projects celebrated and shared the story of their success.

Many projects engaged the media to help build community support as well as to publicize their activities as part of a broader marketing campaign. Some communities held up their successful entrepreneurs as role models. ARC was also instrumental in sharing success through their region-wide education efforts, e.g., conferences, and programs like the Appalachian Youth Entrepreneurship Education Springboard award.

Kentucky’s Artisan Heritage Trails Program, headquartered in Richmond, Kentucky, was especially savvy in its media outreach strategies. Program leaders faced two challenges in terms of media outreach. First, they needed to engage local artisans to participate in the program. Second, they needed to market outside of the region to attract tourists to use the trails and visit local crafts people. In terms of engaging local artisans, project leaders focused first on using the Internet as a marketing tool. As local crafts people began profiting from online sales, word of mouth did the rest of the work. More artisans signed up and the project was off and running. The Trails program began with a small base of 82 artisans. Today, more than 600 artisans sell their wares through the program.

The Trails Programs has also been very savvy and fortunate in its efforts to attract tourists to the region. The most recent innovation is an online trail system that allows visitors to map out their travel plans (along 17 different trails) and also learn more about sites and shops long the trail. But, a more important partnership has been developed with National Geographic. The site was featured in *National Geographic Traveler* magazine and its online maps can be accessed at the *National Geographic Traveler* website.

LESSONS RELATED TO EI PROGRAM – WHAT WORKS IN PROGRAM DESIGN AND IMPLEMENTATION

While this evaluation uncovered significant praise for ARC’s leadership in entrepreneurship development and the value of the investments made from 1997-2005, challenges experienced with the program provide some lessons that may contribute to the continuous improvement of this or other initiatives in the future. Interviewees cited several key challenges that relate to the program’s initial design, its structure for implementation, and efforts to track and communicate its impacts (Table 8.3).

Table 8.3. Lessons Learned for Program Design and Implementation from Evaluation of ARC’s Entrepreneurship Initiative

LESSONS FOR PROGRAM DESIGN	LESSONS FOR PROGRAM IMPLEMENTATION	LESSONS FOR PROGRAM IMPACTS
Practitioners and entrepreneurs have unique local knowledge that can be applied to program design and subsequent program refinements.	Getting EI funds to local partners was dependent upon state program managers and varied based on the importance assigned to the initiative.	Building a broader base of support for entrepreneurship investments requires continued efforts to “make the case” to local leaders.
Successful initiatives brought together related investments, in this case, other regional economic development or entrepreneurship-related investments.	The size of the ARC EI grants placed limits on regional impacts.	Programs can be improved by embracing long-term and locally-driven evaluation of program outcomes and impacts.

Lessons for Program Design

Practitioners and entrepreneurs have unique local knowledge that can be applied to program design and subsequent program refinements.

Nearly every interviewee felt that the EI was an idea whose time had come. The initiative was appropriately tailored for local needs, and helped introduce new economic development concepts into the region. Nonetheless, two primary issues emerged when program managers and other stakeholders commented on the initial design of the EI. First, some practitioners felt they could have been more engaged in the design of the Entrepreneurship Initiative. People in the field felt they had limited input on how the EI was designed or on helping ARC understand what was needed in the region. And, they felt there was no explicit approach to engaging entrepreneurs – the customers – in program design. Second, they also suggested that ARC encourage a more holistic approach to entrepreneurship development. Successful programs weaved together the various ARC initiatives into a more holistic, systems approach to development, combining EI investment with broadband, etc. This lesson could guide ARC in designing future programs.

Critics recognized that the EI, and other ARC special initiatives, do not simply emerge out of thin air. ARC staff and state program managers are responding to trends in the field and to their own analyses of local economic development needs. Indeed, ARC engaged advisory groups with good representation from the private and non-profit sectors to inform the design and implementation of the EI. However, as ARC continues to develop future special initiatives or other entrepreneurship-related investments, it might consider supplementing these approaches with other methods that capture local input in a broader and more systematic manner. Multiple methods could be employed. These could include online surveys, public forums (e.g., listening tours or town hall meetings) that discuss potential new program ideas, or even a process of formal petitions or suggestions provided by state or local program partners. Of paramount importance in any approach taken by ARC, however, is to engage the entrepreneurs in decision making about entrepreneurship development program design.

These techniques are all designed to create a more transparent process of communication between local partner organizations and ARC staff. This more open process will not only help to improve local satisfaction with ARC programs, it will also improve their effectiveness as they become more responsive to local markets and more cognizant of local economic development capacities.

Successful initiatives brought together related investments, in this case, other regional economic development or entrepreneurship-related investments.

A second challenge concerns the relationship between EI and other regional economic development investments from ARC and other local, state or federal partners. For some communities, EI investments served as a one-time investment to support a youth entrepreneurship summer camp or to fund the start-up costs of an incubator. When these projects lacked a sustainability plan or were poorly coordinated with other regional development efforts, they tended to fizzle out once ARC funding ceased.

Virginia's use of EI funds presents a compelling contrast, offering a model of how to link ARC funding into a broader regional regeneration strategy. Southwest Virginia's economy had long depended on mining and manufacturing as regional drivers. At the time of EI's inception, state and local leaders were focused on developing new strategies for regional reconstruction. They viewed EI funds as seed investments to support strategies around heritage tourism, sustainable agriculture and forestry, and Main Street development. As such, they sought to tie EI projects to the Virginia Main Street program, and also used EI dollars to start-up marquee projects like *The Crooked Road* heritage music trail and the *Round the Mountain* artisans' network. In fact, six of the eight venues on *The Crooked Road* tour have received ARC funds. Virginia has invested dollars from subsequent ARC special initiatives (in broadband and asset-based development)

to further support this larger region-wide strategy. As one statewide observer put it, “We see ARC as part of a mosaic, not as projects. . . . ARC programs are tools, not ends in themselves.”

A similar process occurred in Western Maryland’s Garrett County where local leaders linked the EI to an ongoing effort to revitalize the county’s downtown areas. EI investments were coordinated with Main Street programs. Main Street programs focused on issues of streetscapes, beautification, and supporting local retail; EI dollars supported expanded business technical assistance, a new microloan program, and creation of a business incubator. Together, these efforts have helped revitalize downtown Oakland and the county’s other town centers.

Lessons for Program Implementation

Getting EI funds to local partners was dependent upon state leadership and varied based on the importance assigned to the initiative.

State governments are the ARC’s key regional partners, so it is not surprising that several dimensions of state government helped shape the EI process. The differences between state approaches to the EI are quite striking. As we saw in the case of Virginia, several states used EI funds to support components of a wider regional development strategy. Other states, such as Pennsylvania, steered investments toward certain types of programs or strategies (e.g., entrepreneurial assistance through networking). Finally, other states supported grass-roots innovation and funded a host of local pilot projects.

In addition to pursuing different strategies, states also differed in terms of their commitment to promoting entrepreneurship as a regional development strategy. Some governors and state program managers were cool to the new approach, while others viewed it as a critical component for community transformation. Not surprisingly, the level of “buy-in” by state leaders had a large impact on how the deployment, outcomes and effectiveness of the program varied by state. If the EI was not a priority for state leaders, it was not likely to be promoted within their state. Statewide performance of EI projects also seemed to improve when state program managers had close ties with local community practitioners.

When it comes to state program management, there is no one best approach. Each strategy has its pros and cons, and each strategy may also exclude some programs from potential consideration for ARC funding. These programs may be located in regions or may be pursuing approaches that fall outside of the state’s primary strategic focus. State leaders will retain a central role in future ARC project decisions, but, in the case of special initiatives, ARC might consider setting aside some portion of funds that are open to direct application from localities or non-profits. Further details of this proposed Innovation Fund are presented in Chapter 9.

The size of ARC grants placed limits on regional impacts.

Practitioners, and state program managers, were challenged by the relatively small pool of money allocated to the EI. State program managers noted that it was difficult to figure out what to do with small amounts of money and it was hard to get recognition for the EI as a result. Most of those interviewed recognized the political necessity for ARC to spread resources throughout the region but noted that this often resulted in too little money to achieve significant impacts. As one stakeholder noted, the initiative sowed many seeds but the ground was not fertile enough to grow sustainability for most of these efforts.

Table 8.4 provides a summary of state-level EI investments on an annual basis. They indicate that ARC faced serious obstacles when seeking to transform regions or even a region's thinking about entrepreneurial development. ARC's investments were generally dwarfed by other economic development spending in the region. For example, Kentucky spent \$808 million on economic development in 2004,⁹⁶ dwarfing ARC's 2004 Kentucky EI investments of nearly \$384,000. Because of these disparities, ARC investments must be tightly focused on programs that can build scale, be sustainable, and have major impact.

One interviewee referred to the "sprinkling effect" of EI investments. ARC spent enough dollars to meet one of the EI's key objectives – to educate state and local leaders about the potential of entrepreneurial development as a regional development strategy. Unfortunately, the investments were not sufficiently large to meet ARC's other objectives of fostering "systemic change in the economic development landscape of the region."⁹⁷ With average per project investments of \$126,387, the EI served mainly as seed stage funding for regional transformation. There are some noteworthy exceptions that prove the value of more sustained investments in program development. ARC made a series of grants to a number of programs throughout the region that have demonstrated sustainability after the EI investments were completed. The Shoals Entrepreneurial Center incubator in Alabama and the Natural Capital Investment Fund (NCIF) in West Virginia are two examples of multi-year grant making that helped build institutional capacity that ultimately led to sustainable organizations that continue to have an impact on their states and, in the case of NCIF, the region.

What this lesson learned suggests for the structure of any future entrepreneurship investments is that "next level" investments for local initiatives that the EI has spawned are needed. Interviewed project managers remained strongly committed to building on the momentum generated by EI. They noted

⁹⁶ Mountain Association for Community Economic Development, *Accounting for Impact: Economic Development Spending in Kentucky* (Berea, KY: Mountain Association for Community Economic Development, 2005).

⁹⁷ Appalachian Regional Commission, *Entrepreneurship Initiative Program Summary*, September 30, 2003, <http://www.arc.gov/index.do?nodeId=1970>.

that the EI had “kick-started the conversation” and had “got people thinking” about new ways to build community prosperity. The cultural shift sought by EI’s designers is starting to take hold. One community leader put it well, “I don’t hear the phrase, ‘this isn’t gonna work’ anymore.” The region’s residents – and its economic development organizations – are increasingly aware of local economic assets and their ability to support home-grown economic development approaches.

ARC has sought to build on this momentum through its regular programs and ongoing Chairman’s initiatives in broadband, energy, and asset-based development. But, it should not abandon its previous focus on local entrepreneurial development. Indeed, as demonstrated in Chapter 5, entrepreneurship is a key asset in the region and can be a driving force within ARC’s asset-based development initiative. ARC was instrumental in seeding entrepreneurship activity in the region, and it should consider some way to continue these investments. Emerging successful programs would benefit from “next level” funding that would allow project leaders to move these initiatives to a level that has the potential for transformative impact.

Lessons for Program Impacts

Building a broader base of support for entrepreneurship investments requires continued efforts to “make the case” to local leaders.

While the EI has been successful in beginning to change attitudes toward entrepreneurship, this cultural shift is by no means universal throughout the region. Particularly among local elected officials, capacity building and efforts to make the case are needed.

Interviewees were quite positive about ARC’s ongoing education efforts. Under EI, the agency sponsored several well-attended conferences on entrepreneurial development in general, and on specific topics such as business incubation and support for creative industries. All of these events were well attended and received high marks for attendees. Although ARC issued specific invitations to local elected officials in an attempt to get them to these events, for the most part, attendees were already engaged with ARC as grantees and partners in the EI program. ARC should consider additional outreach efforts, spread across the region to encourage participation, as well as investments to provide workshops or training to the region’s elected officials or those who work in government agencies or cooperatives focused on other rural development issues (e.g., rural telecommunications cooperatives, USDA Cooperative Extension officials, Conservation Districts, etc.) These programs need not be funded solely by ARC but could be developed in cooperation with relevant trade associations. Through these partnerships, ARC could not only spread the message about the importance of entrepreneurial development. It would also reinforce an important message that effective entrepreneurial development requires a holistic and

collaborative approach to economic development. Entrepreneurial development is not the sole province of economic developers. It requires partnerships with elected officials, educators, local business owners, and other key stakeholders in the region.

Programs can be improved by embracing long-term and locally-driven evaluation of program outcomes and impacts.

Practitioners would have benefited from ongoing assessment of project outcomes and follow up from ARC to share lessons learned and support mid-course changes as needed. It was clear that a better metrics system, both in terms of defining relevant outcomes and collecting and reporting data, was needed.

This finding echoes the results of Westat's 2004 evaluation of ARC's community capacity-building projects which found that community program managers were ill-equipped to track, measure, and publicize the outcomes of their programs and ARC investments.⁹⁸ In EI's case, few projects tracked metrics beyond those required as part of the ARC grant. This measurement challenge was identified as part of the initial evaluation of ARC's EI investments, completed early in the life of the initiative.⁹⁹ This early study observed that the internal evaluation and monitoring systems used in the sample projects lacked "specific outcome measures." While most projects they studied had created an evaluation system, "43 percent of all projects cited 'monitoring outcomes' as a problem." The persistence of this measurement challenge suggests the need for corrective action for future entrepreneurship investments.

As noted in Chapters 3 and 4, these shortcomings are not unique to ARC projects or to the general field of entrepreneurial development. In fact, because of their short life spans, few entrepreneurial development programs have been subjected to rigorous performance measurement and assessment.¹⁰⁰ Moreover, most ARC grantees had limited budgets and limited staff who were primarily focused on delivering programs and serving customers. As a result, few programs could devote sufficient attention to performance measurement.

Given the resource and time pressures facing program managers, ARC cannot expect them to embrace rigorous performance measurement and should instead seek to create incentives for more effective program assessment. ARC could set aside some portion of all grant funds (1-2%) to support program measurement. ARC could also develop a program measurement "toolkit" that helps walk all

⁹⁸ Brian Kleiner, et al., Evaluation of The Appalachian Regional Commission's Community Capacity-Building Projects, Report to the Appalachian Regional Commission, July 2004.

⁹⁹ Regional Technology Strategies, Inc., Evaluation of the Early Stages of the Appalachian Regional Commission's Entrepreneurship Initiative, Report to the Appalachian Regional Commission, December 2001.

¹⁰⁰ Organization for Economic Cooperation and Development, OECD Framework for the Evaluation of SME and Entrepreneurship Policies and Programmes (Paris: OECD, forthcoming).

grantees through the evaluation process. Finally, ARC could designate resource experts among its own staff (or partner organizations) who can provide technical assistance (when needed) on pressing performance measurement issues. These recommendations are further discussed in the next chapter.

Table 8.4. Annual and Total ARC Entrepreneurship Investments, 1997-2005, by State (\$)

STATE	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Alabama	0	159,000	381,663	537,187	198,850	405,000	92,000	518,892	112,675	2,405,267
Georgia	110,000	0	441,826	0	581,529	349,442	83,000	723,747	334,118	2,623,662
Kentucky	92,769	226,000	787,500	290,532	510,500	225,362	657,880	383,794	587,198	3,761,536
Maryland	0	207,000	455,200	548,918	312,379	139,000	99,000	130,000	45,000	1,936,497
Mississippi	0	220,577	30,000	164,970	594,835	157,000	0	200,000	226,000	1,593,382
New York	0	243,140	187,654	920,000	75,000	25,000	145,000	265,000	35,000	1,895,794
North Carolina	0	0	0	1,050,000	0	444,908	200,000	157,500	673,673	2,526,081
Ohio	0	153,940	406,213	451,921	613,700	244,500	1,673,330	15,000	50,000	3,608,604
Pennsylvania	313,397	1,072,808	1,099,000	199,900	659,636	383,750	362,000	460,000	125,000	4,675,491
South Carolina	0	500,000	0	750,000	119,105	752,000	500,000	891,382	58,750	3,571,237
Tennessee	0	451,748	325,000	390,000	410,185	185,000	93,000	201,133	35,000	2,091,066
Virginia	374,500	0	495,380	416,527	476,630	433,000	181,200	280,391	90,000	2,747,628
West Virginia	142,150	752,948	1,075,916	300,537	1,673,748	1,042,835	582,000	458,400	1,105,474	7,134,008
Regional	14,000	332,503	124,623	264,901	169,162	79,610	973,574	108,063	75,000	2,401,436
Total ARC	1,046,816	4,319,664	5,809,975	6,285,393	6,395,259	5,126,407	5,641,984	4,793,302	3,552,888	42,971,688

Figures include all projects (closed and open) and investments from all funding sources within ARC.

CHAPTER 9 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

This evaluation was designed to assess the outcomes achieved by the portfolio of projects that received investments from ARC's Entrepreneurship Initiative from 1997-2005, as well as the broader policy impacts that accrued to the region as a result of this initiative. By considering a limited set of performance measures collected for the universe of closed projects and a more detailed set of measures and insights gained from in-depth study of a sample of projects, the evaluation team was able to develop a thorough understanding of what EI investments have meant to individual projects and the region as a whole. Job and business creation have been important and significant outcomes of EI investments, as summarized in Table 9.1 below. Over 12,000 jobs have been created or retained and over 1,700 new businesses created, at a cost that suggests an efficient allocation of resources relative to other similar types of economic development programs. However, these measures tell only part of the story of impacts. EI investments have helped to train teachers and expose students to entrepreneurship concepts, almost 12,000 throughout the region. These investments have been instrumental in attracting almost \$73 million in private investment to support entrepreneurship development in the region. And, through their educational investments and the demonstration effect of the projects funded, ARC has made entrepreneurship a legitimate and desirable economic development activity in local communities and raised awareness about the importance of the entrepreneurial and small business sector to the region's economy.

Based on the results of this evaluation, the evaluation team concludes that the ARC Entrepreneurship Initiative has had an impact in the region by creating more entrepreneurs in the pipeline (through its entrepreneurship education investments), better informed entrepreneurs and better skilled entrepreneurs (through its technical assistance and training, incubator and sector investments). These investments have resulted in more job creating businesses. EI investments have also helped to create and enhance capacity to support entrepreneurship development in the region, most prominently through investments in equity capital funds that seeded and facilitated the creation of a developmental venture capital industry in the region. In addition, ARC investments have created the beginning of culture change in the region – increased recognition of the importance of entrepreneurship as an economic development strategy and increased support for those people and organizations that are committing their talents and resources to pursuing an entrepreneurial path. ARC investments have energized and empowered a new set of actors in the region, especially non-profit organizations, who continue to provide innovative, entrepreneurial leadership in the region.

Table 9.1. Summary of Quantitative and Qualitative Evaluation Findings

QUANTITATIVE OUTCOMES FOR THE UNIVERSE OF PROJECTS	
Jobs created	9,156
Jobs retained	3,022
New businesses created	1,787
Businesses served	8,242
Actual private \$ leveraged	\$72,802,868
Public cost / job created or retained	\$579 - \$3,994
Public cost / business created or expanded	\$2,988 - \$7,818
QUANTITATIVE OUTCOMES FOR THE SAMPLE PROJECTS	
Jobs created	4,332
Jobs retained	1,351
New businesses created	1,083
Businesses served	2,957
Incubator clients served	475
Students or teachers trained	11,634
Actual private \$ leveraged	\$15,856,275
QUALITATIVE OUTCOMES OF ARC EI INVESTMENTS	
Raised the profile of entrepreneurship as a development strategy and helped change the mindset within the region	
Provided start-up funding for innovative projects that would not have happened “but for” ARC investment	
Leveraged additional resources that helped some projects achieve scale and impact	
Facilitated networking and collaboration among practitioners	
Helped change people’s attitudes, particularly among youth and their teachers	

RECOMMENDATIONS

ARC’s Entrepreneurship Initiative was plowing new ground when first conceived in 1997. At that time, only a handful of states and localities were experimenting with approaches that placed entrepreneurs and their companies at the center of economic development thinking and strategy. Today, the economic development landscape is quite different. Entrepreneurship has become a mainstream component of local economic development strategies and has been making strong inroads in education at the primary, secondary, and post-secondary levels.

In the decade since EI’s inception, the field of entrepreneurship development has been created. An important body of knowledge about effective strategies and programs now exists. Yet, the field must still be defined as “emerging.” Lists of effective practices and programs have been developed,¹⁰¹ but these program ideas have not been accompanied with a rigorous approach to program design, management, and evaluation.¹⁰²

¹⁰¹ For example, see Markley, Macke and Luther (2005); Dabson, et al. (2003); OECD (2003).

¹⁰² OECD (Forthcoming).

Because it was a forerunner of today's programmatic innovations, ARC's EI experience can and should be tapped for useful ideas on how to improve the field of entrepreneurial development. With a decade of experience under its belt, ARC staff and partners can offer invaluable guidance to other federal, state, and local policy makers. For example, the Department of Labor's new WIRED (Workforce Innovation in Regional Economic Development) initiative has invested more than \$300 million in regional projects designed in part to stimulate local entrepreneurial activity. These program managers could learn a great deal from the EI experience.

In an effort to strengthen future entrepreneurial development programs, the team has developed a set of recommendations that fall into three categories:

- Recommendations for entrepreneurship development investments
- Recommendations for creating a "best in class" metrics system
- Recommendations for program design and management.

Recommendations for Entrepreneurship Development Investments

Entrepreneurship development initiatives should include assessment of existing capacity and capacity building activities as part of project design.

The evaluation of ARC's EI investments highlighted the value of capacity building – visioning, leadership development (youth and adult), asset mapping, community engagement, and strategy development. Successful entrepreneurship development initiatives build on existing capabilities, as was seen with Kentucky Highlands Investment Corporation, Appalachian Community Enterprise in Georgia, and the Shoals Entrepreneurial Center in Alabama, or create new capacity, as evidenced by the PACERS youth entrepreneurship program in Alabama and the Tech 2020 program in Tennessee. Therefore, including capacity building as an integral part of entrepreneurship investments should result in stronger, more effective initiatives.

ARC (and other federal, state or local program managers) could address this finding in several ways. At the most basic level, it could require applicants to provide an assessment of existing community capacity during the grant application process. Such an assessment would be more than a simple listing of assets. Rather, project leaders should identify their leadership team, the partner organizations, their level of resource commitment to the initiative, and how this existing capacity will be used in substantive ways to support regional entrepreneurship initiatives. They could also be required to outline a plan for enhancing resource or leadership capacity if necessary.

A second approach would create closer links between existing community capacity building programs and entrepreneurial development investments. Many of the goals pursued through ARC's community capacity investments, such

as increased organizational capacity, enhanced skills for individuals, and improved economic development outcomes,¹⁰³ are similar or identical to those pursued via an entrepreneurial development strategy. Many program interventions, such as enhanced technical assistance to business, also share similarities. Building these linkages will be eased thanks to these close connections. Indeed, ARC has already experimented with this approach under its 2005 Asset-Based Development Initiative which explicitly identified promotion of civic entrepreneurship as a primary program goal. ARC might consider more direct linkages between entrepreneurial development and other existing programs.

Finally, ARC might consider future programs that operate according to a staged process where initial investments are made in a host of community capacity building efforts. Entrepreneurship development would be considered a “second-stage” investment for communities and programs that had relatively robust local capacity in place. This staging of investments would likely produce better community outcomes. Not surprisingly, the EI experience indicates that the presence of strong local capacity has a significant effect in contributing to better economic development outcomes.

Entrepreneurship development investments should be made with a focus on the long term.

The long-term nature of entrepreneurship development requires a long-term approach to investment. If a goal of these initiatives is to transform the culture of Appalachia, or another region, then a 10-year or longer time horizon is more appropriate than the more typical one to three year grant cycle. Throughout the interviews, local program managers commented that ARC investments were too short-lived to generate sustainable local impacts. Programs could be initiated and local momentum could be generated. Yet, in most cases, ARC funds ran out at this critical point of impact, two to three years after program initiation.

This pattern creates a dilemma for program managers. Like a start-up entrepreneur, they are intensely focused on scaling up their new programs. Because entrepreneurial companies take time to generate outcomes (in terms of new products or job creation), support programs are unlikely to be able to boast of major economic development impacts during the start-up phase. They may have only a few isolated success stories after the first year or two of operations. Without these large (and quick) community impacts, program managers are then handicapped in their ability to identify other sources for program funds.

ARC should consider giving preference to multi-year funding commitments that would provide a flow of resources over a longer time horizon, assuming performance on the part of the local partner and availability of federal funding on the part of ARC. These dynamics do not imply that projects should have an

¹⁰³ For a review, see Brian Kleiner, et al., July 2004, xi.

indefinite period of funding. It is appropriate that project leaders articulate a plan for sustainability and show progress toward reaching that goal as a condition of long-term investment. But, multi-year funding commitments would provide a stable base from which these local projects could develop.

Entrepreneurship development initiatives receiving investments should be market driven and practice continuous improvement.

The needs of the customer – defined as youth, entrepreneurs or communities – must be the key drivers of entrepreneurship development. Initiatives should be designed to include mechanisms that obtain performance feedback, allow for mid-course corrections, and in some cases, redefine project goals, based on what project leaders are learning from their markets. While the field of entrepreneurship development has come a long way since the EI began in 1997, it is still in an experimentation stage. Organizations throughout Appalachia and the country are continually evolving new ways of working with entrepreneurs and communities that can inform both the design of new and the improvement of existing efforts to encourage entrepreneurship as a core economic development strategy.

ARC should consider requiring project leaders to conduct annual performance reviews. These reviews could be conducted as part of the ongoing evaluation that is recommended below. And, they should include some assessment of the project's market – for example, assessing the experience of entrepreneurs participating in a particular training or technical assistance program through focus groups or customer surveys. It is recommended that ARC participate in these reviews, providing constructive feedback and suggesting resources that local partners might use to improve program performance. ARC could use its network of regional and national partners to link a local project with a more experienced practitioner elsewhere to address a specific performance issue or concern.

Emphasis should be placed on investing in initiatives that demonstrate the ability to form regional partnerships and collaborations.

With capacity and resource limitations a reality for most organizations, the ability to form dynamic and effective partnerships that share resources becomes paramount to success. These cross-organizational and cross-regional collaborations should be emphasized in the design of entrepreneurship initiatives, and effective partnerships should be rewarded as part of the investment process. ARC should require extensive community partnerships for all of its future entrepreneurial development investments.

However, ARC must recognize that it take resources to facilitate collaboration. While local projects should be required to demonstrate true collaboration across geography (e.g., multi-county projects) and organizations (e.g., public, private and non-profit partners), ARC should consider requiring that project leaders

demonstrate budgetary commitment to cover the costs of collaboration. This resource commitment could come through allocating part of ARC funds to support collaborative activities or through the allocation of local matching dollars to this process. ARC can help further true collaboration by making it a priority in grant making and by educating local partners to the resource realities associated with collaboration.

Recommendations for Creating a “Best in Class” Metrics System

Job creation is an overused metric, paints an incomplete picture of the outcomes of entrepreneurship development investments, and should be replaced by an “entrepreneurship development metrics portfolio.”

ARC’s existing performance measurement system requires all projects to report the following relevant measures as part of its final project close-out process:

- Businesses Served
- Jobs Created
- Jobs Retained
- Project Participants
- New Businesses Created.

These metrics provide some useful insights, but most project managers and outside experts felt they were poorly suited to providing a complete picture of the EI’s impact. They were better tailored to measure the impact of more traditional economic development investments in physical infrastructure. In recognition of these shortcomings, nearly all local projects devised their own performance indicators which ranged from simple additions such as use of customer satisfaction surveys to more extensive systems that tracked the financial performance of assisted companies.

While job creation is reported as a result of ARC’s EI investments, a much richer understanding of the initiative’s impact has come through efforts to define and capture outcomes as measured by a broad set of performance metrics. These metrics include both quantitative output measures, e.g., students trained, as well as more qualitative measures, such as enhanced leadership capacity and resources leveraged through partnerships. What is clearly needed is the creation of a portfolio of metrics linked to particular types of entrepreneurship development programs. These metrics would be outcome measures that are clearly linked to the goals of particular projects. For example, to evaluate the impacts of entrepreneurship education efforts, metrics would focus on measuring the outcomes of training – whether young people are more likely to consider entrepreneurship as a career path, whether they go on to create businesses in the future, whether they return home to the region, etc.

Earlier in this report, Table 4.1 provided a portfolio of performance or outcome metrics that can be used to measure the impacts of entrepreneurship development investments across the program types that are part of ARC’s EI portfolio. These outcome measures were drawn from a review of the literature and formed a framework for this evaluation. While this framework could be used as a basis for discussion by ARC and its grantees as part of the evaluation partnership approach described below, Table 9.2 provides a more limited set of metrics that might be operationalized into a “best in class” metrics system. The proposed metrics include quantitative measures that would be collected from project leaders, who in turn would use survey and other tools to gather data from their customers. In addition, there are a number of metrics that will capture the qualitative impacts that were observed through this evaluation of the EI investments. Outcome measures to capture these qualitative changes in cultural attitudes would need to become part of the evaluation system adopted by grantees, using tools and techniques developed with support of ARC or another funding organization.

Table 9.2. Proposed “Best in Class” Outcome Measures

<p>Capital Access – Projects designed to provide access to a range of capital resources to help businesses start and grow and, in the process, become stronger competitors in local, regional, national and/or international markets.</p>	<ul style="list-style-type: none"> ▪ Number of new businesses financed (measure of business starts) ▪ Number of jobs (FTEs) created/retained (measure of business growth) ▪ Percent of funded firms still in business (measure of business performance) ▪ Average wage/job created (measure of business performance) ▪ Percent change profitability (measure of business performance)
<p>Sectors – Projects focused on improving the start up, growth, and performance of businesses in a particular sector and on growing particular sectors of the local or regional economy. Projects included networking activities designed to improve business performance.</p>	<ul style="list-style-type: none"> ▪ Amount of increased sales (\$) attributed to network or sector participation (measure of business performance) ▪ Number of jobs (FTEs) created/retained (measure of business growth) ▪ Increase in number of business starts in targeted sector (measure of business start up) ▪ Change in total sector sales over time (measure of growth in the sector)
<p>Incubators – Projects focused on creating a physical space for businesses to start up and grow, with the goal of graduating these firms into the local or regional economy.</p>	<ul style="list-style-type: none"> ▪ Number jobs (FTEs) created/retained while in the incubator (measure of business starts/growth) ▪ Number jobs (FTEs) created/retained after graduation (measure of business growth) ▪ Amount of capital (\$) raised by tenants (measure of business growth) ▪ Percent of business tenants retained in the service area (measure of local/regional economic impact)

<p>Entrepreneurship Education* – Projects focused on exposing young people to entrepreneurial concepts and experiences to enhance their understanding of entrepreneurship as a career option and to encourage youth retention through entrepreneurship.</p>	<ul style="list-style-type: none"> ▪ Increase in awareness of business concepts (measure of exposure to entrepreneurship concepts) ▪ Increase in number of participants considering business creation as a career option (measure of exposure to entrepreneurship concepts) ▪ Number of students that stay or return to the service area (measure of impact on youth retention)
<p>Technical Assistance and Training – Projects designed to build the skills of individual entrepreneurs so that they can start and grow their businesses and create stronger enterprises in the local and regional economy.</p>	<ul style="list-style-type: none"> ▪ Number jobs (FTEs) created/retained (measure of business growth) ▪ Number of clients still in business (measure of business performance) ▪ Private capital (\$) raised by clients (measure of business growth) ▪ Average wage/job created (measure of business performance) ▪ Percent change in profitability (measure of business performance)
<p>Culture Change – Projects often achieve qualitative impacts (both intended and unintended) that relate to changes in people’s attitudes toward entrepreneurship, their view of the importance of entrepreneurs to the local/regional economy, and the value placed on collaborative decision making and partnerships to create a more supportive environment for entrepreneurs.</p>	<ul style="list-style-type: none"> ▪ Public investment (\$) in entrepreneurship development activities (pre vs. post project investment) ▪ Private investment leveraged (\$) as a result of project investment in entrepreneurship development ▪ Perceived change in community/regional support for entrepreneurship development (as measure through pre and post-investment community surveys) ▪ Increased collaboration among support providers (as measured by the number of partners contributing resources to entrepreneurship development)

* The metrics developed for entrepreneurship education projects refer to potential outcomes of these projects as economic development initiatives. Therefore, metrics focus on outcomes that have potential impacts on the community and not just the individual young person. These individual potential outcomes have been measured through metrics related to changes in student performance, e.g., increased test scores, increased applications to college, improved reading, and increased leadership activities in school/community.

A “best in class” metrics system requires investment in a “best in class” evaluation system.

Performance measurement should be viewed as an integral part of program development – from the perspective of funding agencies like ARC and project leaders. One of the first steps in developing any initiative needs to be an articulation of program goals – what are you trying to achieve – followed by identification of how success or performance will be measured. These inputs form a performance measurement system that can be used by local project leaders to report on success, broaden support, and attract additional resources and partners to the effort. From ARC’s perspective, developing the evaluation

framework before investment will help to insure that individual projects contribute to the overall goals set forth by ARC and that the agency will have appropriate metrics to use to report on the performance of the overall initiative.

Ex post evaluations of major investments like ARC's EI face serious challenges in terms of the collection and integrity of data; recalling accurately the impacts of a project that ended 7-10 years ago was a challenge for most project leaders. Greater investment must be made in establishing criteria and providing funding for an ongoing evaluation of entrepreneurship development initiatives as they unfold. As noted above, local grantees regularly developed their own in-house metrics to supplement those required as part of ARC's grants process. While these in-house efforts generated a fair amount of useful data, they provided no means to aggregate data across program types, across regions, or across the entire EI spectrum.

ARC should support the creation of a performance measurement system for future investments by developing a participatory evaluation system in partnership with grantees. This measurement system would be developed by grantees and their customers, i.e., the entrepreneurs, with support from ARC, and would be designed to provide project leaders with useful information that can be used to adapt programs to changing circumstances as well as to report to ARC on project performance. The evaluation framework should be built into the program from the beginning, and project leaders would be expected to sign off on that evaluation system as part of a grant agreement. By taking this partnership approach to evaluation, ARC would be in a stronger position to hold project leaders accountable for generating the outcome metrics identified for the project, and to provide them with feedback on performance.

The evaluation team also recommends that ARC consider two sets of outcome metrics: a base set of metrics for all programs, and a tailored set of metrics for each specific type of program intervention, as laid out in Table 9.2. For example, an entrepreneurship training program and a new business incubator might both be assessed according to traditional metrics of job creation or new business starts. Beyond these base measures, incubators might be assessed according to the number of firms graduated from the facility, the incubator's annual revenue, and a range of financial metrics for businesses served by the incubator. Training programs might use a common customer satisfaction survey or other tools that assess whether participants gained new skills or knowledge, supplemented by follow-up surveys to collect financial performance metrics for business customers. Youth entrepreneurship education programs might develop metrics related to measuring the entrepreneurial skills acquired by young people who participate in these programs.

ARC has an opportunity to take the lead, among any newly authorized regional authorities and other federal agencies, in developing and standardizing assessment criteria and methods that can have an impact on how

entrepreneurship development investments are evaluated and, more broadly, how the impacts of economic development programs are measured.

Recommendations for Program Design and Management

ARC's initiative process should be regularized so that state program managers can more effectively plan for and promote use of the resources.

Interviews indicate that state program managers and local grantees like the ARC initiative process. They like the focus on specialized issues and concerns, and they like the learning opportunities provided by ARC through various sponsored conferences and reports. They are less enamored with the episodic nature of the initiative process. They would like more input into the discussions about new initiative topics, and more information on initiatives being considered in the future.

Given the gate keeping role of state leaders, ARC should provide structure and consistency to the initiatives to encourage the active buy-in of people at the state level. A more transparent and open process for community input on project design and implementation would also help ARC create more effective initiatives and empower local people and organizations to actively participate in these efforts.

As noted in Chapter 8, ARC went through an extensive process of getting input into the design of the EI. Advisory groups of state leaders and private/non-profit sector practitioners and others with experience in entrepreneurship development helped to inform the decision making behind the EI. Meetings and educational events throughout the region provided opportunities for state and local leaders to provide input to the process. In spite of these significant steps, there remains a sense that local practitioners had limited input into the design and implementation of the EI. One way to address this perception might work as follows. As ARC's leadership considers new topics for potential initiatives, it can open a process for outside input. Ideally, suggestions should be provided in multiple formats from a formal request for comment in the Federal Register to the use of blogs as a means to generate online discussion. In-person sessions, such as town hall meetings held in widely dispersed locations throughout the region, should also be considered. ARC should consider tapping into the ever growing infrastructure of entrepreneurship service providers in the region, using online surveys to get their input on what is needed in the region. The US Department of Agriculture's series of sponsored Farm Bill Forums, to discuss key sections of the 2007 Farm Bill, offers one excellent model for organizing public outreach and discussion.¹⁰⁴

¹⁰⁴ Summaries of the Farm Bill Forums, held throughout 2006, can be found at <<http://www.usda.gov/wps/portal/usdafarmbill?contentidonly=true&contentid=2006/03/0106.xml>>.

ARC's proven experience can be applied to developing and delivering effective, region-wide education programs that help make the case for entrepreneurship as a core economic development strategy for the Appalachian region.

There continues to be a strong need to make the case for entrepreneurship, particularly among local elected officials and traditional economic developers. Throughout the EI, ARC has organized educational opportunities to share information about topics such as capital access, business incubation, and entrepreneurship education. What is needed now, however, is a broader effort to provide community leaders, elected and others, with the understanding and tools they need to embrace entrepreneurship as part of an economic development strategy.

ARC has developed a reputation as a trusted authority in this field and also has the lessons learned from ten years of entrepreneurship development investments to share throughout the region. In addition, ARC's partnership approach in the beginning of the EI process can be brought to bear on this educational effort, drawing on resources and experiences of other organizations working on entrepreneurship development throughout the country.

A Next Generation Entrepreneurship Initiative

This evaluation has generated a host of new ideas and lessons learned, but one prevailing idea has emerged throughout the evaluation process – additional investments in entrepreneurship development throughout Appalachia are still in significant demand. Given the success and capacity that the ARC EI has already been building, the evidence suggests that continued ARC investment in entrepreneurship development in the region is a compellingly logical and vital next step.

To build on this momentum, ARC should create a Next Generation Entrepreneurship Innovation Initiative that will be groundbreaking in its design. A long-term investment is recommended that incorporates all the learning from the EI and the emerging entrepreneurship development field. It will include four critical elements:

- The Entrepreneurship Innovation Fund would provide selective, competitive, strategic investments in “next level” entrepreneurship development activities throughout the region. The Entrepreneurship Innovation Fund would not be tied to individual states, but would be competitively awarded across the region. Investments would be made in initiatives that demonstrate a holistic, systems approach to entrepreneurship development, with an emphasis on those initiatives that have the potential to be transformational and sustainable. It is recommended that ARC take a portfolio approach to these investments –

investing in more proven innovations as well as those that offer promise but are still early stage innovations.

- The second element would be a pool of funds distributed to the states for investments in first tier entrepreneurship projects at the ground level. Similar to the EI, these projects would build capacity and fulfill distinct entrepreneurship metrics that are developed by the communities and ARC working together.
- In the interest of capacity building, ARC should fund the development of *“Entrepreneurship Innovation – Guidelines for the Future”* – a framework for communities to use based on what ARC has learned from 10 years of investment in this field and what its partner organizations across the country have learned through their various activities.
- The fourth element would be a built-in evaluation system that is initiated from the beginning of the Entrepreneurship Innovation Initiative. It would incorporate the “best in class” metrics derived from this evaluation, discussions with ARC, and input from the field. This evaluation system will be essential to making the case as well as measuring and ensuring impact.

This capstone recommendation is based on the recognition that, while the Entrepreneurship Initiative has achieved important impacts at the community level, the region has not seen widespread or significant policy change at the state level. The entrepreneurship context assessment in Chapter 5 suggests that many parts of the region continue to lag the nation, particularly in terms of income generated by entrepreneurial activities. The Entrepreneurship Innovation Initiative would give ARC an opportunity to make investments that are deeper and more transformational, generating impacts that are influential in achieving policy change at the state, as well as local, level throughout the region. This initiative would also provide an opportunity to implement a participatory evaluation system that can generate the data and insights that will provide a deeper understanding of how ARC investments help to change the economic outlook and performance of the region.

BIBLIOGRAPHY

- Acs, Zoltan J. "The State of the Literature on Small to Medium Sized Enterprises and Entrepreneurship in Low-Income Communities." Federal Reserve Bank of Kansas City and Ewing Marion Kauffman Foundation, 2006.
- Acs, Zoltan J. and Catherine Armington. Using Census BITS to Explore, Entrepreneurship, Geography, and Economic Growth. Washington, DC: US Small Business Administration Office of Advocacy, 2005.
- Advanced Research Technologies. The Innovation-Entrepreneurship Nexus. Washington, DC: US Small Business Administration Office of Advocacy, 2005.
- Aernoudt, Rudy. "Incubators: Tool for Entrepreneurship?" Small Business Economics. Vol. 23, No. 2, September 2004. 127-135.
- Alliance for Regional Stewardship. Regional Indicators: Telling Stories, Measuring Trends, Inspiring Actions. ARS Monograph Series No. 10. November 2005.
- Appalachian Regional Commission. Appalachian Youth Entrepreneurship Springboard Award: 2002 and 2003 Winners. Washington, DC: Appalachian Regional Commission, 2004.
- Appalachian Regional Commission. Capitalizing on Rural Communities. Washington, DC: Appalachian Regional Commission, 2000.
- Appalachian Regional Commission. Entrepreneurship Initiative: Program Summary and Approved Projects. Washington, DC: Appalachian Regional Commission, 2003.
- Atkinson, Robert D. The Past and Future of America's Economy. Northampton, MA: Edward Elgar, 2004.
- Atrostic, B.K. "Measuring U.S. Innovative Activity." US Census Bureau Center for Economic Studies Working Paper (07-11). March 2007.
- Association of University Technology Managers. AUTM U.S. Licensing Survey, FY 2004: A Survey Summary of Technology Licensing (and Related) Performance for U.S. Academic and Nonprofit Institutions, and Technology Investment Firms. Washington, DC: AUTM, 2004.
- Audretsch, David, et al. "The Knowledge Filter and Economic Growth: The Role of Scientist Entrepreneurship." Ewing Marion Kauffman Foundation, 2006.

-
- Barkley, David L. et al. Establishing Nontraditional Venture Capital Institutions: Lessons Learned. Rural Equity Capital Initiative Study of Nontraditional Venture Capital Institutions. Columbia, MO: Rural Policy Research Institute, 2001.
- Barkley, David L. and Deborah Markley. The Development of an Entrepreneurial Support Organization: The Case of the Kentucky Highlands Investment Corporation. RUPRI Center for Rural Entrepreneurship Research Case Study Series Number 1. March 2003.
- Bartik, Timothy J. Evaluating the Impacts of Economic Development Programs on Local Economic Outcomes: What Has Been Done and What is Doable? Upjohn Institute Staff Working Paper (No. 03-89). Kalamazoo, MI: Upjohn Institute, 2002.
- Bartik, Timothy J. and Richard D. Bingham. "Can Economic Development Programs be Evaluated?" Dilemmas of Urban Economic Development. Eds. R.D. Bingham and Robert Mier. Thousand Oaks, CA: Sage, 1997. 246-277.
- Block, Z. and S. A. Stumpf. "Entrepreneurship Education Research: Experience and Challenge." The State of the Art of Entrepreneurship. Eds. D. L. Sexton and J. D. Kasarda. Boston, MA: PWS-Kent Publishing, 1992. 17-45.
- Bollingtoft, Anne and John P. Ulhoi. "The Networked Business Incubator – Leveraging Entrepreneurial Agency?" Journal of Business Venturing Vol. 20, 2005: 265-290.
- Brandow Company and Economic Development Research Group. Evaluation of the Appalachian Regional Commission's Infrastructure and Public Works Program Projects, Final Report to the Appalachian Regional Commission. Washington, DC: Appalachian Regional Commission, 2000.
- Brown, J. David, John S. Earle, and Dana Lup. "What Makes Small Firms Grow? Finance, Human Capital, Technical Assistance, and the Business Environment in Romania." Economic Development and Cultural Change Vol. 54, No. 1, 2005: 33-70.
- Burchell, Robert W. EDA RLFs: Performance Evaluation. Washington, DC: U.S. Economic Development Administration, 2002.
- Burchell, Robert W. EDA Defense Adjustment Program: Performance Evaluation. Washington, DC: U.S. Economic Development Administration, 1997.

-
- Burchell, Robert W. EDA Public Works Program: Performance Evaluation. Washington, DC: U.S. Economic Development Administration, 1997.
- Carter, Sara, et al. "Beyond Portfolio Entrepreneurship: Multiple Income Sources in Small Firms." Entrepreneurship and Regional Development Vol. 16, 2004: 481-499.
- Charney, Alberta and Gary Libecap. The Impact of Entrepreneurship Education: An Evaluation of the Berger Entrepreneurship Program at the University of Arizona, 1985-1999. Kauffman Center for Entrepreneurial Leadership, 2000.
- Chukumba, Celestine and Richard Jensen. Invention, Entrepreneurship, and Start-Ups. National Bureau of Economic Research Working Paper (#11475). July 2005.
- Coalition of Community Development Financial Institutions. Providing Capital Building Communities Creating Impact. Washington, DC: CDFI Coalition, 2004.
- Coastal Enterprises, Inc. Measuring Impact in Practice. Wiscasset, ME: Coastal Enterprises Inc., February 2006.
- Colgan, Charles S. and Bruce Andrews. Evaluation of Maine Technology Institute Programs. University of Southern Maine Center for Business and Economic Research. December 2004.
- Collender, Ray et al. "Financial Markets Serve Rural Areas Fairly Well." Rural Development Perspectives Vol. 14, No. 1, May 1999: 28-35.
- Community Development Venture Capital Association. Measuring Impacts Toolkit. New York: Community Development Venture Capital Alliance, 2005.
- Cooke, Phil. Regional Innovation Systems as Public Goods." Working Paper. United Nations Industrial Development Organization, 2005.
- Council on Competitiveness. Measuring Regional Innovation. Washington, DC: Council on Competitiveness, 2006.
- Council on Competitiveness. Innovate America. Washington, DC: Council on Competitiveness, December 2004
- Czohara, Laura and Julia Melkers. Performance Measurement in State Economic Development Agencies: Lessons and Next Steps for GDITT. Georgia State University Fiscal Research Center Report No. 92. February 2004.

-
- Dabson, Brian, et al. Mapping Rural Entrepreneurship. Washington, D.C.: CFED, August 2003.
- Drabenstott, Mark. A Review of the Federal Role in Regional Economic Development. Working Paper. Center for the Study of Rural America, Federal Reserve Bank of Kansas City, May 2005.
- Eberts, Randall W., George A. Erickcek, and Jack Kleinhenz. "Development of Regional Economic Dashboard." Employment Research July 2006: 3-5.
- Edgcomb, Elaine L. and Joyce A. Klein. Opening Doors, Building Ownership: Fulfilling the Promise of Microenterprise in the United States. Washington, D.C.: FIELD, A Program of the Aspen Institute, 2005.
- Eisinger, Peter K. The Rise of the Entrepreneurial State: State and Local Economic Development Policy in the United States. Madison, WI: University of Wisconsin Press, 1988.
- Elfring, Tom and Willem Hulsink. "Networks in Entrepreneurship: The Case of High-technology Firms." Small Business Economics Vol. 21, No. 4, 2003: 409-422.
- Emery, Mary and Cornelia Flora. "Spiraling Up: Mapping Community Transformation with Community Capitals Framework." Journal of the Community Development Society Vol. 37, No. 1, Spring 2006: 19-35.
- Enterprise Corporation for the Delta. Enterprise Corporation for the Delta Program Monitoring Report – Business Technical Assistance 2003. Jackson, MS: Enterprise Corporation for the Delta, 2003.
- European Commission, Directorate General, Enterprise and Industry. The PAXIS Manual for Innovation Policy Makers and Practitioners. Brussels: European Commission, 2006.
- Fairlie, Robert W. Kauffman Index of Entrepreneurial Activity, State Report 2005. Kansas City: Ewing Marion Kauffman Foundation, 2006.
- Fayolle, Alain. "Evaluation of Entrepreneurship Education: Behavior Performing or Intention Increasing?" International Journal of Entrepreneurship and Small Business Vol. 2, No.1, 2005: 89-98.
- Feldman, Maryann. "The Entrepreneurial Event Revisited: Firm Formation in a Regional Context." Industrial and Corporate Change Vol. 10, No. 4, 2001: 861-891.

-
- Felsenstein, Daniel and Aliza Fleischer. "Small-Scale Entrepreneurship and Access to Capital in Peripheral Locations: An Empirical Analysis." Growth and Change Vol. 33, 2002: 196-215.
- Fisher, Peter. "The Fiscal Consequences of Competition for Capital." Reining in the Competition for Capital. Ed. Ann Markusen. Kalamazoo, MI: WE Upjohn Institute, 2007.
- Foster, Lucia. Reallocation and Productivity Dynamics in the Appalachian Region. US Census Bureau Center for Economic Studies Working Paper (06-03). January 2006.
- Giannetti, Mariassunta and Andrei Simonov. On the Determinants of Entrepreneurial Activity: Individual Characteristics, Economic Environment, and Social Norms. White Paper. Stockholm School of Economics, June 2004.
- Gilbert, Brett Anitra, David B. Audretsch, and Patricia P. McDougall. "The Emergence of Entrepreneurship Policy." Small Business Economics Vol. 22, 2004: 313-323.
- Gillett, Sharon E., et al. Measuring the Economic Impact of Broadband Deployment, Final Report to the Economic Development Administration. Washington, DC: Economic Development Administration, February 2006.
- Glasmeier, Amy K. Cost per Job Associated with EDA Investments in Urban and Rural Areas. Washington, DC: U.S. Economic Development Administration, 2002.
- Goetz, Stephan J. and David Freshwater. "State-Level Determinants of Entrepreneurship and a Preliminary Measure of Entrepreneurial Culture." Economic Development Quarterly Vol. 15, No. 1, February 2001: 58-70.
- Greenburg, Elizabeth and Richard Reeder. Who Benefits from Business Assistance Programs? Results of the ERS Rural Manufacturing Survey. United States Department of Agriculture Information Bulletin Number 736-04. 1998.
- Greene, F.J. and D.J. Storey. "An Assessment of a Venture Capital Creation Programme: the Case of Shell LiveWIRE." Entrepreneurship and Regional Development Vol. 16, No. 2, March 2004: 145-159.
- Greenwood Consulting Group. A Survey of Business Incubators in Appalachia. Washington, DC: Appalachian Regional Commission, July 2005.

-
- Grimaldi, Rosa and Alessandro Grandi. "Business Incubators and New Venture Creation: An Assessment of Incubating Models." Technovation Vol. 25, 2005: 111-121.
- Heard, Robert and John Sibert. Growing New Businesses with Seed and Venture Capital: State Experiences and Options. Washington, DC: National Governors Association, 2000.
- Ho-Kim, Thu-Mai and Ernesto Venegas. Starting Up Economic Engines: Key Factors for Growing Successful Start-Ups. Minnesota Department of Employment and Economic Development Issue Brief. October 2003.
- Huggins, R. "The Success and Failure of Policy-Implanted Inter-firm Network Initiatives: Motivations, Processes and Structure." Entrepreneurship and Regional Development Vol. 12, 2000: 111-135.
- Innovation Associates Inc. Accelerating Economic Development Through University Technology Transfer. February 2005.
- Institute for Competitiveness and Prosperity, Measuring Ontario's Prosperity: Developing an Economic Indicator System. Working Paper No. 2. Ontario, Canada: Institute for Competitiveness and Prosperity, 2002.
- Junior Achievement. The Impact on Students of Participation in Junior Achievement: Selected Cumulative and Longitudinal Findings. Monograph. January 26, 2004.
- Katz, Jerome. And Another Thing. . . 2006 Coleman Foundation White Paper on Entrepreneurship Education. 2006 Annual Meeting of US Association of Small Business and Entrepreneurship, January 13, 2006.
- Katz, Jerome A. "The Chronology and Intellectual Trajectory of American Entrepreneurship Education, 1876-1999." Journal of Business Venturing Vol. 18, 2003: 283-300.
- Kingsley, Gordon and Edward J. Malecki. "Networking for Competitiveness." Small Business Economics Vol. 23, 2004: 71-84.
- Kleiner, Brian, et al. Evaluation of The Appalachian Regional Commission's Community Capacity-Building Projects. Washington, D.C.: Appalachian Regional Commission, July 2004.
- Kourilsky, Marilyn, and William B. Walstad. The E Generation. Dubuque, IA: Kendall-Hunt, 2000.

-
- Lambrecht, Johan and Fabrice Pirnay. "An Evaluation of Public Support Measures for Private External Consultancies to SMEs in the Walloon Region of Belgium." Entrepreneurship and Regional Development Vol. 17, 2005: 89-108.
- Lee, Lena. Entrepreneurship Education: A Compendium of Related Issues. Working Paper. National University of Singapore Entrepreneurship Centre, 2005.
- Lichtenstein, Gregg A. and Thomas S. Lyons. "The Entrepreneurial Development System: Transforming Business Talent and Community Economies." Economic Development Quarterly Vol. 15, No. 1, 2001: 3-20.
- Lichtenstein, Gregg A. and Thomas S. Lyons, Incubating New Enterprises: A Guide to Successful Practice. Washington, DC: Aspen Institute, 1996.
- Low, Sarah. "Regional Asset Indicators: Entrepreneurship Breadth and Depth." The Main Street Economist September 2004:1-4.
- Low, Sarah, Jason Henderson, and Stephan Weiler. "Gauging a Region's Entrepreneurial Potential." Economic Review Third Quarter, 2005.
- Edward Lowe Foundation, et al. Michigan: Toward an Entrepreneurial Economy, 2005-2006. Cassopolis, MI; Edward Lowe Foundation, 2006.
- Malecki, Edward J. "Geographical Environments for Entrepreneurship." International Journal of Entrepreneurship and Small Business Forthcoming 2008.
- Manigart, Sophie, et al. "Determinants of Required Return in Venture Capital Investments: A Five Country Study." Journal of Business Venturing Vol. 16, No. 6, July 2002: 291-312.
- Maunula, Mari. The Perceived Value-Added of Venture Capital Investors. Discussion Paper No. 1030. The Research Institute of the Finnish Economy, March 2006.
- Markley, Deborah, et al. Rural Equity Capital Initiative Study of Nontraditional Venture Capital Institutions. Working Paper PB2001-11A-D. Rural Policy Research Institute, 2001.
- Markley, Deborah and Karen Dabson. Innovative Approaches to Entrepreneurial Development: Cases from the Northwest Region. RUPRI Center for Rural Entrepreneurship, 2006. 32-41.

-
- Markley, Deborah, Don Macke and Vicki Luther. Energizing Entrepreneurs: Charting a Course for Rural Communities. Lincoln, NE: Heartland Center for Leadership Development, 2005.
- Markman, Gideon, et al. "Entrepreneurship and University-based Technology Transfer." Journal of Business Venturing Vol. 20, No. 2, 2005: 241-263.
- McKernan, Signe-Mary and Henry Chen. Small Business and Microenterprise as an Opportunity and Asset-Building Strategy. Urban Institute Issue Brief No. 3. June 2005.
- McMullan, W. E. and W.A. Long. "Entrepreneurship Education in the Nineties." Journal of Business Venturing Vol. 18, No. 2, 1987: 261-275.
- Microenterprise Fund for Innovation, Effectiveness, Learning and Dissemination. Improving Microenterprise Training and Technical Assistance: Findings for Program Managers. Washington, DC: Aspen Institute, 2002.
- Microenterprise Fund for Innovation, Effectiveness, Learning and Dissemination. Assessing the Effectiveness of Training and Technical Assistance. Field Forum Issue 1. Washington, DC: Aspen Institute, 1999.
- Minniti, Maria, with William Bygrave and Erkkko Autio. Global Entrepreneurship Monitor 2005 Executive Report. London: London Business School, 2005.
- Molnar, Lawrence, et al. Impact of Incubator Investments. Athens, OH: National Business Incubation Association, 1997.
- Mountain Association for Community Economic Development. Accounting for Impact: Economic Development Spending in Kentucky. Berea, KY: Mountain Association for Community Economic Development, 2005.
- Nakkula, Michael. Expanded Explorations into the Psychology of Entrepreneurship: Findings from the 2001-2002 Study of NFTE in two Boston Public High Schools. Working Paper. Harvard University Graduate School of Education, 2003.
- National Association of Development Organizations Research Foundation. Business Not as Usual: Regional Development Organizations Promote Rural Entrepreneurship. Washington, DC: NADO, 2002.
- The National Association of Seed and Venture Funds. Seed and Venture Capital: State Experiences and Options. NASVF White Paper. May 2006.

-
- National Commission on Entrepreneurship. American Formula For Growth. Washington, D.C.: National Commission on Entrepreneurship, October 2002.
- National Community Reinvestment Coalition. Access to Capital and Credit for Small Businesses in Appalachia. Washington, DC: National Community Reinvestment Coalition, 2007.
- National Governors Association. A Governor's Guide to Strengthening State Entrepreneurship Policy. Washington, DC: National Governors Association, 2004.
- Nexus Associates. A Continuing Record of Achievement: The Economic Impact of the Ben Franklin Technology Partners, Final Report. March 2003.
- North Carolina Rural Economic Development Center. Hello, My Business Name is ...: A Guide to Building Entrepreneurial Networks in North Carolina. Raleigh, NC: North Carolina Rural Economic Development Center, 2007.
- Oklahoma Center for the Advancement of Science and Technology, Impact Report 2006. Oklahoma City, Oklahoma: OCAST, January 2006.
- Oldsman, Eric. Evaluation as an Effective Management Tool. Nexus Associates Inc., 2003.
- Oldsman, Eric. "Do Manufacturing Extension Programs Matter?" Research Policy Vol. 25, No. 2, March 1996: 215-232.
- Organization for Economic Cooperation and Development. OECD Framework for the Evaluation of SME and Entrepreneurship Policies and Programmes. Paris: Organization for Economic Cooperation and Development, Forthcoming.
- Organization for Economic Cooperation and Development. Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data Third Edition. Paris: Organization for Economic Cooperation and Development, 2005.
- Organization for Economic Cooperation and Development. Entrepreneurship and Local Economic Development. Paris: Organization for Economic Cooperation and Development, 2003.
- Pages, Erik R., Doris Freedman, and Patrick Von Bargen. "Entrepreneurship as a State and Local Economic Development Strategy." The Emergence of Entrepreneurship Policy: Governance, Start-Ups and Growth in the U.S. Knowledge Economy. Ed. David Hart. Cambridge, MA: Cambridge University Press, 2003.

-
- Pages, Erik R. and Shari Garmise. "The Power of Entrepreneurial Networks." The Economic Development Journal Vol. 2, No. 3, Summer 2003: 20-30.
- Pages, Erik R. and Kenneth A. Poole. "Entrepreneurship Promotion as an Economic Development Strategy: Next Steps in Institutionalizing the Field." Applied Research in Economic Development Vol. 3, No. 2, December 2006: 10-27.
- Phan, Phillip and Siegel, Donald. The Effectiveness of University Technology Transfer: Lessons Learned from Quantitative and Qualitative Research in the U.S. and the U.K. Rensselaer Working Papers in Economics. April 2006.
- Pittaway, Luke, Maxine Robertson, Kamal Munir, and David Denyer. Networking and Innovation: A Systematic Review of the Evidence. University of Lancaster Institute for Entrepreneurship and Enterprise Development Working Paper 016. 2004.
- Reamer, Andrew, Larry Icerman, and Jan Youtie. Technology Transfer and Commercialization: Their Role in Economic Development. Washington, D.C.: US Economic Development Administration, August 2003.
- Reese, Laura and David Fasenfast. "Critical Perspectives on Local Development Policy Evaluations." Economic Development Quarterly Vol. 13, No. 1, 1999: 3-7.
- Regional Technology Strategies, Inc. Evaluation of the Early Stages of the Appalachian Regional Commission's Entrepreneurship Initiative. Washington, D.C.: Appalachian Regional Commission, December 2001.
- Reynolds, Paul, D.J. Storey, and P. Westhead. "Crossnational Comparisons of the Variation in New Firm Formation Rates." Regional Studies Vol. 28, No. 4, 1994: 443-456.
- Rice, Mark P. "Co-production of Business Assistance in Business Incubators: An Exploratory Study." Journal of Business Venturing Vol. 17, No. 2, 2002: 163-187.
- Robinson, Dennis and Zuoming Liu. A User Guide to the Socio-Economic Benefits Assessment System: A Rural Business-Cooperative Services Assessment Tool for Economic Development. Community Policy Analysis Center, University of Missouri-Columbia, December 2004.
- Romanelli, Elaine and C.B. Schoonhoven, eds. The Entrepreneurship Dynamic. Stanford, CA: Stanford University Press, 2001.

-
- Rosenfeld, Stuart A. "Networks and Clusters: The Yin and Yang of Rural Development." Proceedings of Federal Reserve Bank of Kansas City Conference on Exploring Policy Options for a New Rural America. September 2001: 103-120.
- Sandler, David. The Effective Use of Tax Credits in State Venture Capital Programs. Ottawa: Canadian Tax Foundation, 2004.
- Schlough, Charles and Streeter, Deborah. Cornell University's Entrepreneurship Education and Outreach Program: An Evaluation and Proposal. Department of Agricultural, Resource, and Managerial Economics Working Paper. Cornell University, 1999.
- Shane, Scott. Academic Entrepreneurship: University Spin-offs and Wealth Creation. Cheltenham: Edward Elgar, 2004.
- Shapira, Philip. The Evaluation of USNet: Overview of Methods, Results and Implications Final Report submitted to USNet Partners. August 1998.
- Shapira, Philip. The Evaluation of USNet: Overview of Methods, Results and Implications – Final Report. Georgia Tech Policy Project on Industrial Modernization Working Paper 9805. 1998.
- Simpkins, Amy. "Community Development Venture Capital: Producing Results for Entrepreneurs, Investors, and Communities." Bridges Vol. 10, November 2006.
- Smits, Ruud and Stefan Kuhlmann. "The Rise of Systemic Instruments in Innovation Policy." International Journal of Foresight and Innovation Policy. Vol. 1, Nos. 1/ 2, 2004.
- Solomon, George G., S. Duffy and A. Tarabishy. "The State of Entrepreneurship Education in the United States: A Nationwide Survey and Analysis." International Journal of Entrepreneurship Education Vol. 1, No. 1, 2002: 65-86.
- Storey, David J. Six Steps to Heaven: Evaluating the Impact of Public Policies to Support Small Businesses in Developed Economies. Warwick Business School Small and Medium Sized Enterprise Centre Working Paper No. 59. University of Warwick, September 1998.
- Street, Christopher T. and Ann-Frances Cameron. "External Relationships and Small Business: A Review of Small Business Alliance and Network Research." Journal of Small Business Management Vol. 45, No. 2, 2007: 239-266.

-
- Taylor, Jill S. What Makes a Region Entrepreneurial? A Review of the Literature. Cleveland State University Center for Economic Development Monograph. September 2006.
- Tornatzky, Louis G. et al. Incubating Technology Businesses: A National Benchmarking Study. Athens, Ohio: National Business Incubation Association, 2003.
- Tornatzky, Louis G. et al. Innovation U.: New University Roles in a Knowledge Economy. Durham, NC: Southern Growth Policies Board, 2002.
- United Kingdom Department of Trade and Industry. Innovation in the UK: Indicators and Insights. DTI Occasional Paper No. 6. July 2006.
- U.S. Small Business Administration Office of Advocacy and the Ewing Marion Kauffman Foundation. Entrepreneurship in the 21st Century. Conference Proceedings. March 26, 2004.
- Vesper, Karl and William Gartner. "Measuring Progress in Entrepreneurship Education." Journal of Business Venturing Vol. 12, No. 5, May 1997: 403-421.
- Welch, Doug, et al. Net Benefits: An Assessment of a Set of Manufacturing Business Networks and their Impacts on Member Companies. Report Prepared for USNet and Regional Technology Strategies, Inc. 1997.
- Westat. Evaluation of The Appalachian Regional Commission's Community Capacity-Building Projects. Washington, D.C.: Appalachian Regional Commission, July 2004.
- White, Jesse. "Overview Panel Comments." Proceedings of Federal Reserve Bank of Kansas City Conference on Beyond Agriculture: New Policies for Rural America. April 2000.
- Witt, Peter. "Entrepreneurs' Networks and the Success of Start-Ups." Entrepreneurship and Regional Development Vol. 16, 2004: 391-412.
- Zider, B. "How Venture Capital Works." Harvard Business Review Vol. 76, No. 6, 1998: 131-139.

APPENDIX A LITERATURE REVIEW

A review of literature was completed for works involving evaluation of entrepreneurship initiatives in five areas – access to capital, entrepreneurial networks, entrepreneurship education, technical assistance (including incubator projects), and technology transfer. These five program areas correspond to the original five areas identified by ARC as requiring investment in order to create a more entrepreneurial region. The literature review included primarily works that reported on more comprehensive evaluations of entrepreneurship efforts. Not all of the publications cited in this report were considered as candidates for the literature review. A citation and brief summary are provided for each publication reviewed and the metrics used or suggested are highlighted. Works appear alphabetically within each program section.

Access to Capital

Colgan, Charles D. and Bruce H. Andrews. Evaluation of Maine Technology Institute Programs. Maine Institute for Technology and the University of Southern Maine Center for Business and Economic Research. 2004.

Summary

This presentation evaluates the states investments in technology by looking at the impacts for institutional grant recipients, the economic impact, effects on company finances, intellectual property development, relationships cultivated, and quality of assistance programs.

The evaluation finds that assistance recipients have had significant success in developing new products leading to intellectual property protection and that they are likely to have an economic impact on the state. Grant assistance has served as a much needed catalyst for external financing, and relationships have been cultivated to enhance the economic cluster networks in the state.

Metrics Suggested

- Employment growth at assisted companies
- Matching funds received (federal grants, external debt, external equity and grantee match)
- Number of firms indicating new product for sale
- Sources of firm revenue
- Distribution of company sales by geography and technology sector
- Expected raw materials purchased within the state
- Sources and amount of debt and equity capital
- Patent activity
- Other intellectual protection activity
- Number of company respondents that received assistance from the identified program (compared to other assistance programs).

-
- Mean rating of organizations consulted and percent of respondents who claimed relationship was critical to success
 - Client assessments of interactions with program in relation to percent satisfaction to all state R&D assistance

Community Development Financial Institutions Data Project. Providing Capital, Building Communities, Creating Impact. Fourth Edition. Washington, D.C. 2004. 10 November 2006
<http://www.cdfi.org/downloads/CDP_fy2004_complete.pdf>.

Summary

Data from 517 Community Development Financial Institutions was analyzed to demonstrate the impact of CDFIs on emerging domestic markets throughout the U.S. Some of the results include that almost 7,000 businesses received assistance from CDFIs resulting in 28,330 jobs. The financial assistance served niche domestic markets that are underserved by traditional lending institutions and the transactions were prudent and effective. CDFIs were also shown to be flexible and timely enough to grow and change with the dynamics of the market and respond effectively to large-scale disasters such as hurricane Katrina.

Metrics Suggested

- Number of CDFIs
- Total Assets
- Average Assets
- Total FTEs
- Total Direct Financing Outstanding
- Average Direct Financing Outstanding
- Percent of Direct Financing Outstanding to specific sectors
- Net Charge-Off Ratio
- Delinquency Rate > 90 days
- Delinquency Rate > 2 months
- Average Capital
- Percent of Debt from different types of institutions
- Markets served: rural vs. urban and regional markets
- Types of community betterment programs assisted, such as childcare, affordable housing, service organizations, educational slots, payday loan alternatives

Felsenstein, Daniel and Aliza Fleischer. “Small-Scale Entrepreneurship and Access to Capital in Peripheral Locations: An Empirical Analysis.” Growth and Change 33 (2002):196-215.

Summary

This paper analyses public assistance programs for small-scale entrepreneurship programs in rural areas. The authors use data from Israel to establish that lending institutions perceive a high risk when lending to areas where there is little

information. The study has three findings: 1. Location matters in determining risk profile, 2. Location-oriented programs can improve information asymmetries that can be a risk factor and 3. These programs can create positive welfare effects. The study also asserts that there is speculation about the ability of information technology to increase visibility of small rural firms and enhancing information flow.

Metrics Suggested

An estimation framework using

- Net employment
- Total employment
- Monthly wage for an individual income groups
- Revenue
- Loan value
- Guarantee Value

Greene, F.J. and D.J. Storey. "An Assessment of Venture Capital Creation Programme: The Case of Shell LiveWIRE." Entrepreneurship and Regional Development 16.2 (March 2004):145-159.

Summary

This paper suggests there are two areas when considering the problems inherent to assessing venture capital creation programmes: assessment is contingent upon the evaluation context and an input-output analysis is inadequate. The researchers create a new instrument to assess the value of these programs. They find that "soft" forms of support were of little value and that the more likely an individual was to engage in entrepreneurial activity the less likely they would be to seek the venture capital program's services.

Points to Consider for appropriate metrics

- What is the purpose of the evaluation? Evaluate the efficacy of the program or the internal efficiencies?
- Be cognizant of the operational issues involved with a program.

Manigart, Sophie et al. "Determinants of Required Return in Venture Capital Investments: A Five Country Study." Journal of Business Venturing 16.6 (July 2002):291-312.

Summary

The authors use two theoretical perspectives (resource theory and financial theory) to develop hypotheses about the determinants of the return required by venture capitalists. They test them on over 200 companies in 5 countries. They find that acquisition and buyout specialists require a significantly lower return than other venture capital companies (VCCs). Also, highly stage-diversified VCCs, independent VCCs, and VCCs providing more intensity of involvement all expect higher return rates.

Metrics Suggested for Average Rate of Return for Venture Capital Companies

- 36%-45% for early stage investments
- 26%-30% for expansion investments, acquisitions, buy-outs and other later stage categories
- 42% for early stage, stage specific rates
- 33% for later stage, stage specific

National Association of Seed and Venture Funds. Seed and Venture Capital: State Experiences and Options. May 2006. 10 November 2006
<[http://www.nasvf.org/nasvf/web.nsf/fbaad5956b2928b086256efa005c5f78/1412e8744c1c500c862572ad00019ab5/\\$FILE/Seed%20and%20Venture%20Capital%20Report%20-%20Final.pdf](http://www.nasvf.org/nasvf/web.nsf/fbaad5956b2928b086256efa005c5f78/1412e8744c1c500c862572ad00019ab5/$FILE/Seed%20and%20Venture%20Capital%20Report%20-%20Final.pdf)>.

Summary

The report includes a survey of the 50 states and their status in seed and venture capital. The report concludes there are 10 lessons learned. One of these lessons is that each state should develop a "System of Evaluation." It claims that the best programs establish outcome measures from the beginning, keep track of the program results and evolve according to changing conditions.

The report mentions that state funds can have different objectives. It notes that if funds have a more economic or social development target than on should not expect the same rate of return as private funds.

The report establishes a starting point for more in-depth evaluation and design prospects for state venture capital funds.

Metrics Suggested

- Number of jobs created or retained
- Geographic reach
- Industry reach

Sandler, Daniel. "The Effective Use of Tax Credits in State Venture Capital Programs." Tax Paper 108, Canadian Tax Foundation. 2004.

Summary

In his paper, Sandler states how the Venture Capital Industry in the U.S. is highly localized and for many states to encourage the geographic dispersal of venture funds, they are using tax credits. He offers several suggestions on how to evaluate these tax programs.

Metrics Suggested

- Economic growth in the state generated by the SMEs that are funded.
- The amount of capital raised through the tax credits

-
- All other capital the business raised
 - Number of new employees
 - Wage rates
 - Capital expenditures

Entrepreneurial Networks

Elfring, Tom and Willem Hulsink. "Networks in Entrepreneurship: The Case of High-technology Firms." Small Business Economics 21.4 (2003):409-422.

Summary

The value of networks as an integral part of the explanation of entrepreneurial success is widely acknowledged. However, the network perspective does not specify the role of networks in the emergence and early growth of a venture. We have distinguished three entrepreneurial processes in new venture development, i.e. discovery of opportunities, securing resources, and obtaining legitimacy, which are of importance for survival and performance. This paper examines how these processes are influenced by strong and/or weak ties and whether the degree of innovation (incremental versus radical) acts as a contingency factor in the way network ties support entrepreneurial processes. In this explorative study three cases on high technology firms in The Netherlands provide empirical material enabling us to develop a number of propositions on the network effect, in particular the mix of strong and weak ties, on the three entrepreneurial processes.

Metrics Suggested

- Network effects
- Types of network ties
- Motives for getting involved in networks

Kingsley, Gordon and Edward J. Malecki. "Networking for Competitiveness." Small Business Economics 23 (2004):71-84.

Summary

A policy innovation that has achieved widespread diffusion across national and sub national governments in industrialized countries is the promotion of networks among small manufacturers as a means of promoting competitiveness. However, research and evaluations of formal networks formed in response to policy initiatives tend not account for the informal networks that small manufacturers routinely use in gathering information and business resources.

This study examines the use of informal networks by 50 small manufacturing firms in rural and urban regions of northern Florida. The analysis is inductive and designed to provide a point of comparison to the growing literature on formal small manufacturing networks. Unlike formal networks, the links that comprise informal networks tend to be geographically and socially mixed. Small firms use informal networks to gather information on a mix of issues. Urban and rural firms have similar patterns of network use on issues affecting product development and competitiveness. But they have different patterns of network usage for issues associated with exporting and labor problems.

Informal networks draw upon local and non-local information resources that do not require significant amounts of interpersonal contact across actors. Proximity is not a factor in the effective use of informal networks for information purposes. Rather the emphasis is upon locating “tried-and-true” solutions that solve the business needs. There is little evidence suggesting that the informal networks that these small manufacturers use are gravitating towards or seeking the development of formal networks. Thus, policy prescriptions identifying barriers to networking among small manufacturers are borne out in this study.

Metrics Suggested

- Business relationships between participating firms
- Needs of firms that prompted them to seek out networks (were those needs met?)
Information sources used (did network participation change these?)

Pages, Erik and Shari Garmise. “The Power of Entrepreneurial Networking.” Economic Development Journal 2.3 (Summer 2003):20-30.

Summary

In 2000 the National Commission of Entrepreneurship helped convene a national series of focus groups to find out what makes a community entrepreneurial. They found that strong universities, access to venture capital, and good physical infrastructure matter, but so do soft, people-based assets. The opportunity to network with other entrepreneurs was an important factor in the success of entrepreneurs in regions.

This article was designed to offer strategies for creating and nurturing networks.

Metrics Suggested

- Learning between individuals (rather than exclusively inter-firm)
- Linkages created between entrepreneurs (brokering)
- Creation of common perspectives.
- Cultural change
- Creation of civic leaders
- Branding of a region
- Enhancing regional competitiveness
- Networks spun off from parent network

Regional Technology Strategies, Inc. Evaluation of the Early Stages of the Appalachian Regional Commission’s Entrepreneurship Initiative. A Report to the Appalachian Regional Commission. December 2001.

Summary

This is the evaluation of the Appalachian Regional Commission’s \$17.6 million effort, begun in 1997, to bolster the entrepreneurial infrastructure of Appalachia.

ARC awarded Regional Technology Strategies, Inc. (RTS) the contract to undertake the assessment and analysis based on a sample of 23 - 25 projects.

To collect the necessary data, the research team (1) conducted a careful review of information and documentation supplied to the ARC by grant recipients, (2) conducted a survey of the sample of projects supplemented by selected telephone interviews with project staff, (3) conducted telephone interviews with randomly selected clients and partner organizations from among names submitted by projects, and (4) visited two project sites for a more in-depth perspective.

The evaluation uses a variety of measures to assess outcomes and impacts on individuals and the local economy. The first set of measures assesses relative degrees of satisfaction of clients with the intervention. The second important set evaluates the economic results of the intervention on the client such as new enterprises started, new markets, or new products lines. The third captures the more general impacts on the economy in terms of jobs created by the new enterprises, growth potential of the enterprises, and potential sustainability of the program.

Clients of the programs generally expressed high levels of satisfaction with the support they received. Three-quarters of projects reported businesses developed new products, 55 percent indicated that firms upgraded technologies or management methods, and half reported starting new businesses.

About 52 percent of the sample projects reported creating jobs in existing firms and 39 percent reported saving jobs that would have otherwise been lost. Adults created 214 new firms—33 new firms with 1 and 181 without employees. Based on those projects that were able to report hard numbers in the survey, 356 new jobs were created—54 in new firms, 121 in existing firms, and 181 jobs through self-employment. Another 85 jobs were saved from extinction in existing firms. In addition, surveyed projects reported 46 new businesses created by youth or students as class projects, some of which could become self-sustaining businesses after graduation.

Metrics Suggested

- Client levels of satisfaction
- New product development in existing businesses
- Technology or management method improvement in existing businesses
- New businesses created
- Jobs created
- Jobs retained that would have been lost without the project
- Businesses started by youths
- Income of businesses created

Rosenfeld, Stuart. "Networks and Clusters: The Yin and Yang of Rural Development." Proceedings of Federal Reserve Bank of Kansas City Conference on Exploring Policy Options for a New Rural America. (September 2001):103-120.

Summary

Beginning in the mid-1980s, policymakers, particularly in rural areas, realized that they could no longer rely only on attracting large branch plants to sustain their economies. Increasing competition from newly developed and less developed low-wage nations was erasing their cost advantages. The more creative development agencies began to rechannel efforts towards stimulating entrepreneurial activity and strengthening indigenous businesses. Among the many policies discovered and promulgated by various experts and advocates in the late 1980s was interfirm collaboration, i.e., the widespread formation of formal and informal alliances, or networks, among groups of companies for mutual competitive advantage.

The policy levers to convert networks from a practice considered by many to be uniquely linked to northern Italy's social and business culture into a more universal practice were first formulated in Denmark in 1989. This approach to interfirm cooperation, designed in Denmark with advice from American consultant Richard Hatch, became the U.S. and international standard. With an allocation of \$25 million from the Ministry of Trade and Industry, the scheme consisted mainly of training people, called brokers, to create networks and then offering groups of three or more companies sequentially phased grants for conceptualization, planning, and implementation. Eligible network activities included joint marketing, production, problem solving, research and development, and purchasing.

The first and only, national effort to move the numbers of networks in the U.S. to a scale that could have impact began in 1993 under a grant from the National Institute for Standards and Technology to Regional Technology Strategies, Inc. The project, called USNet, was based on the documented value of networks to industrial modernization and technology adoption in Europe and involved 15 state partners working together to build statewide network programs for SMEs. It relied heavily on the Danish model of training brokers and multipliers and on a process for informing companies and development organizations. But it depended on the individual partner states to provide the financial incentives. While not a rural development initiative per se, many of the early adopting areas were rural.

Metrics Suggested

- Improved quality of products
- New customers
- New suppliers outside network
- Increased sales
- Increased profitability

-
- Improved existing process
 - Improved relationships with customers
 - Adopted new technologies
 - Improved supplier quality
 - Savings by group purchasing or shared resources
 - Developed new product
 - Increased exports
 - Established new company

**Also suggests that learning is a sufficient outcome for businesses to network.

Shapira, Philip. The Evaluation of USNet: Overview of Methods, Results and Implications. Final Report to USNet Partners. August 1998.

Summary

This report summarizes the aims, methods, and principal findings from the evaluation of USNet. The USNet project was a pilot initiative to build the capacity of its partners to promote inter-firm collaboration, with the ultimate aim of enhancing the competitiveness of small and mid-sized manufacturing enterprises.

The evaluation discusses the findings of the major USNet evaluation studies undertaken by members of the evaluation team. The principal findings of the evaluation are:

- Firms who collaborate in inter-firm networks report positive net benefits, while greatest private impacts are associated with strong industry leadership of networks
- USNet's original network promotion goals were too ambitious, given the resources available; judged against more realistic expectations, USNet has performed well
- USNet's training programs have generated widespread awareness about inter-firm collaboration
- USNet special projects demonstrate the value of explicit follow-on initiatives to promote inter-firm collaboration
- USNet policy and organizational impacts at the state level were modest
- Federal support can strengthen efforts to promote inter-firm collaboration at the state level and aid shared learning

Metrics Suggested

- Impacts of networks on states-number of firms involved in networks, attitudes of organizations toward inter-firm collaboration, learning new information, making new contacts, learned about other states' practices, getting ideas to resolve problems, becoming aware of tools.
- Net economic benefits accruing to participating firms
- Generating awareness of inter-firm collaboration

Welch, Doug, et al. "Net benefits: An Assessment of a Set of Manufacturing Business Networks and their Impacts on Member Companies." USNet Evaluation Working Paper 9701. 1997.

Summary

During the 1990s, a growing number of US companies became involved in collaborative interfirm partnerships, flexible business networks and other organized collaborative efforts to aid business performance. Drawing on survey data from industrial companies and network brokers in five US states, this study identifies and measures a range of hard and soft impacts on firms resulting from their participation in interfirm networks. The measures include effects on firms' activities, business strategy, relationships, trust, confidence, technology use, know-how, employment and economic benefits and costs.

USNet, a federal-state initiative to strengthen interfirm collaboration, sponsored this study. In order to assess the impacts of network participation on member companies, two types of surveys were administered at the beginning of 1997, the "1997 National Benchmark Survey of Industrial Network Companies" and the "Survey of Network Presidents/Coordinators." This study presents findings from descriptive and comparative analyses of data from these surveys.

A total of ninety-nine members of 13 separate business networks responded to the survey. Principal findings from this dual survey effort include the following:

- Most of the thirteen surveyed networks are young, urban organizations with limited staff resources.
- With a few exceptions, the network members responding to the survey were small manufacturers.
- The networks' most common primary objective is information sharing.
- Companies of different sizes report different network activities.
- Overall, most respondents are satisfied with the networks. Thirty-one
- Most companies report positive effects to date and expect even larger future effects.
- The average total net benefits per firm of network participation are positive.
- On average, companies experienced a net increase in their employment levels as a result of network participation.
- A few more 'intensive' network activities are associated with stronger overall impacts.
- Companies that share sales leads report higher net benefits of network participation.
- Companies that have been in networks longer are more likely to report sharing technical capabilities with other network members.

Metrics Suggested

- Network objectives
- Differential network activities depending on client characteristics

-
- Satisfaction levels
 - Client experiences of positive effects on strength of positive effects
 - Total net benefit per firm (\$)
 - Change in employment levels of participating companies
 - Intensity of network activities
 - Improvement in employee and management skills due to network participation
 - Knowledge sharing with other companies

Entrepreneurship Education

Charney, Alberta and Gary Libecap. The Impact of Entrepreneurship Education: An Evaluation of the Berger Entrepreneurship Program at the University of Arizona, 1985-1999. Final Report to Kauffman Center for Entrepreneurial Leadership. May 2000.

Summary

The report details the results of a series of surveys on the effect that the Berger Entrepreneurship Program at the University of Arizona has had on its graduates, the university's technology transfer program, financial contributions to the college of business, and the degree to which entrepreneurship has been incorporated into curriculums in other departments. The Berger Program was a good candidate for such an analysis because it had been in existence for sixteen years at the time of the report. A sample of program alumni and other university graduates were surveyed to assess the program's effect on students. According to the results, program graduates were three times more likely to start a new business than non-entrepreneurship graduates. Additionally, program graduates' average annual income was found to be twenty-seven percent higher than the average annual income of general university graduates. However, there was little evidence that program participation led to higher levels of job satisfaction. With regard to technology transfer, the report concludes that entrepreneurship education promotes technology transfer as graduates were more likely to be involved with firms that use licensed technologies or with firms that license technologies to others. A separate survey of University of Arizona administrators revealed that entrepreneurship education had reportedly led to increased financial contributions to the university and respondents felt that other curriculums had been enriched due to pedagogical innovations in the entrepreneurship program.

Metrics Suggested

- Number of business ventures started
- Number of workers employed in venture
- Amount of sales/revenue
- Graduate job satisfaction
- Type of venture started
- Whether or not venture is "high-tech"

Fayolle, Alain. "Evaluation of Entrepreneurship Education: Behavior Performing or Intention Increasing?" International Journal of Entrepreneurship and Small Business 2.1 (2005):89-98.

Summary

Fayolle says there is a growing interest around the question of how to evaluate entrepreneurship education programs. He then suggests that the standard metrics such as direct and indirect job creation are insufficient measuring sticks.

Fayolle points out that there are significant timing issues associated with using job creation as the primary criteria, i.e. he says the entrepreneurial process is a nonlinear one and there is no definitive way to know at what point employment opportunities may be created. Accordingly, he advocates for the inclusion of some more intangible metrics. Fayolle believes that entrepreneurship programs should also be evaluated on the attitudes, mindsets, and intentions of students. He also discusses how different teaching strategies can influence student behavior. Fayolle notes that entrepreneurship training may enable students to start their own enterprise, but it can at the same time dent their desire to do so – consequently, teaching style matters. In essence, Fayolle says that because entrepreneurship is so connected to personal desire and motivation that it is very important to evaluate the student psyche throughout the educational process. Bottom line being that evaluating programs on job creation alone is difficult and incomplete; therefore, that analysis should be supplemented with some assessment of how the program nurtures the entrepreneurial spirit.

Metrics Suggested

- Teaching strategies
- Student attitudes and intentions throughout the process
- An evaluation of overall program goal compared to student goals
- Knowledge acquisition

Nakkula, Michael. “Expanded Explorations into the Psychology of Entrepreneurship: Findings from the 2001-2002 Study of the NFTE in two Boston Public High Schools.” Working Paper, Harvard University Graduate School of Education. 2003.

Summary

This reports details the results of a National Foundation for Teaching Entrepreneurship (NFTE) program that was taught in two Boston public schools during the 2001-2002 school year. In the Boston public school system every student is required to take a school to career “pathway” class that forces them to think about their plans after graduation. In concert with that, a study was set up where some students were enrolled in a special “pathway” class sponsored by NFTE. Students were assessed at the beginning of their “pathway” classes and then again upon completion regarding questions like desire to go to college. Students taking NFTE’s entrepreneurship “pathway” course were found to have experienced considerably higher increases in college interest and occupational aspirations over the duration of the class than students enrolled in non-NFTE “pathway” courses.

Metrics Suggested

- Level of college interest, pre and posttest
- Occupational interest, pre and posttest
- Overall school engagement
- Amount of independent reading

Schlough, Charles and Deborah Streeter. "Cornell University's Entrepreneurship Education and Outreach Program: An Evaluation and Proposal." Working Paper, Department of Agricultural, Resource, and Managerial Economics, Cornell University. 1999.

Summary

The first part of the report evaluates Cornell's Entrepreneurship Education and Outreach (EEO) program. The authors discuss the challenges that the program has encountered during its first two years including a lack of widespread cooperative support from state and local-level stakeholders. Consequently, the second part of the report is a proposal to develop a statewide network of supportive partnerships in order to improve Cornell's entrepreneurship education mission. Included in that plan is a set of "criteria for success" and a corresponding list of metrics. The authors suggest evaluating the proposed program by measuring the number of small businesses started by graduates, the number of jobs created within those ventures, the number of decisions by graduates to not proceed with a business concept, and annual sustained enrollment levels in program courses.

Metrics Suggested

- Number of businesses started
- Number of people employed within those businesses
- Number of decisions by graduates to not pursue a business concept
- Annual sustained enrollment in program courses

Soloman, G.T., et al. "The State of Entrepreneurship Education in the United States: A Nationwide Survey and Analysis." International Journal of Entrepreneurship Education 1.1 (2002):65-86.

Summary

This paper offers an assessment of entrepreneurship education both domestically and abroad as of 2000. Included in the article is a brief literature review on entrepreneurship education. The following is a summary of two articles discussed in that literature review for which full-text versions were not readily available. Citations for both works are listed below.

Block and Stumpf (1992) and McMullan and Long (1987) both assert that traditional measures of program effectiveness such as number of graduates are insufficient indicators of success. Instead they agree that programs should be evaluated according to their socioeconomic impacts. Accordingly, Block and Stumpf (1992) suggest using number of jobs created by graduates and overall job satisfaction as relevant measures. Similarly, McMullan and Long (1987) advocate assessing the number, type, and growth of companies created by entrepreneurship graduates as a better gauge of success.

Metrics Suggested

- Number of jobs created
- Level of job satisfaction
- Number of businesses created
- Types of companies created
- Growth of companies created

Sources

Block, Z. and S. A. Stumpf. "Entrepreneurship Education Research: Experience and Challenge." The State of the Art of Entrepreneurship. Eds. D. L. Sexton and J. D. Kasarda. Boston: PWS-Kent Publishing S.A., 1999. 17-45.

McMullan, W. E. and W.A. Long. "Entrepreneurship Education in the Nineties." Journal of Business Venturing 2 (1987):261-275.

Vesper, Karl and William Gartner. "Measuring Progress in Entrepreneurship Education." Journal of Business Venturing 12 (September 1997): 403-421.

Summary

In this article, Vesper and Gartner report on the results of a 1994 survey which attempted to rank university-level entrepreneurship education programs. The survey was mailed to 941 business school deans both domestically and abroad. Respondents were asked to rank the top programs and to list the most important criteria considered when doing so. Among the possible 18 criterion listed, courses offered was ranked number one followed by faculty publications, impact on community, exploits of alumni, and innovations. Faculty start-ups and location were listed as the bottom two. However, Vesper and Gartner quickly caution the reader about the results of the survey and similar rankings in general. The authors state that the survey did not tie the program rank to specific criteria nor did it evaluate respondent knowledge of the other programs in question. With respect to other popular rankings, for example, program ratings published by *Business Week*, Vesper and Gartner argue that traditional metrics used in those rankings – GMAT scores, computers per capita, etc. – may not be appropriate predictors of entrepreneurial success. Instead, they suggest employing the set of criteria used in awarding the Malcolm Baldrige National Quality Award (MBNQA), a well-established quality improvement program. Using the MBNQA framework, Vesper and Gartner stress the importance of evaluating entrepreneurship programs based on the following seven factors: leadership, information and analysis, strategic and operational planning, human resource development and management, educational and business process management, school performance results, and student focus and student and stakeholder satisfaction.

Metrics Suggested

- Student performance (in specific classes or as demonstrated through a portfolio)

-
- Student improvement throughout program
 - Student satisfaction
 - Impact on the community (number of start-ups, students employed in new firms, students working in positions assisting new firms)

Technical Assistance

Aernoudt, Rudy. “Incubators: Tool for Entrepreneurship?” Small Business Economics 23.2 (2004):127-135.

Summary

This paper examines U.S. and European experiences with business incubators and stresses the need for accurate evaluations of their impact relative to their different types. The author finds that lack of entrepreneurship and the underdevelopment of seed financing and business angel networks are some of the biggest barriers to success. He asserts that seed financing, links with business angels and business angel networks as well as involvement in second round financing and IPO assistance should be integrated into the business incubation concept.

Metrics Suggested

- Survival rate
- Tenants by incubator
- Employment by tenants
- Employment created by graduates
- Graduates remaining in the community

Brown, J. David, John S. Earle and Dana Lup. “What Makes Small Firms Grow? Finance, Human Capital, Technical Assistance, and the Business Environment in Romania.” Economic Development and Cultural Change 54 (October 2005):33-70.

Summary

This paper sought to explore new ground by looking at the policy-relevant factors that may stimulate or hinder small start-up companies, and fill the need for quantitative studies using panel data to analyze statistical relationships between firm growth and objective measures of factors related to policies. They found that availability of loans is a factor while internal finance and trade credit tend to be unimportant. They also found that high school education raises growth but university education and worker training are not necessarily a factor. Technical assistance was also considered a weak factor for small business growth success.

Metrics Suggested

- Retained earnings,
- conventional bank lending,
- informal credit markets,
- tax credits offered by the state
- Membership in business association
- Membership in consultancy programs

-
- Rate of usefulness of assistance programs

Community Development Financial Institutions Data Project. Providing Capital, Building Communities, Creating Impact. Fourth Edition. Washington, D.C. 2004. 10 November 2006
<http://www.cdfi.org/downloads/CDP_fy2004_complete.pdf>.

Summary

Data from 517 Community Development Financial Institutions was analyzed to demonstrate the impact of CDFIs on emerging domestic markets throughout the U.S. Some of the results include that almost 7,000 businesses received assistance from CDFIs resulting in 28,330 jobs. The financial assistance served niche domestic markets that are underserved by traditional lending institutions and the transactions were prudent and effective. CDFIs were also shown to be flexible and timely enough to grow and change with the dynamics of the market and respond effectively to large-scale disasters such as hurricane Katrina.

Metrics Suggested

- Number of people receiving group-based training
- Number of people receiving one on one technical assistance
- Number of organizations receiving training
- Number of jobs created overall from the project
- Number of business receiving training

Enterprise Corporation for the Delta. Enterprise Corporation for the Delta Program Monitoring Report—Business Technical Assistance. 2003. 10 November 2006
<<http://www.ecd.org/Documents/Evaluation/2003TAMonitoringReport.pdf>>.

Summary

This report provides baseline information about the Enterprise Corporation for the Delta's technical Assistance activities associated with their Community Development Financial Institution. This baseline is established to measure the progress of their efforts to address the non-financial needs of potential and existing customers and lay the groundwork for more in-depth analysis in the future.

The ECD has three technical assistance activities: FastTrac entrepreneurial training, brokered TA and Business LINC mentor/protégé program. ECD learned that very few graduates from FastTrac attained loan financing, but many graduates demonstrated more sound decision making. The Brokered TA mostly focused on establishing the foundation for future analysis. The mentoring program of the ECD found that creating a mentoring environment for small start-ups works, but the conditions for its success is very different than many urban programs mostly because there are not large established companies to become a cadre of mentors. They also found that protégés were more successful if they

had several years of experience and if they were in close proximity to their mentor.

Metrics Suggested

- Number of mentor relationships established
- Finance seeking intentions of graduates, before and after course completion
- Number of technical assistance engagements
- Types of TA services requested
- Loan ratings of TA graduates and loan ratings of control group
- Satisfaction level with mentor programs or other TA initiatives.

Greenburg, Elizabeth and Richard Reeder. “Who Benefits from Business Assistance Programs? Results of the ERS Rural Manufacturing Survey.” Agriculture Information Bulletin Number 736-04. United States Department of Agriculture. 1998.

Summary

The authors sought to find out how much government programs helped rural manufacturers and who exactly is benefiting from these programs. They discovered that over 60 percent of manufacturing establishments benefited from the programs and 28 percent of these firms found these programs to be very important to their operations over the last three years. They discovered that manufacturers using advanced technologies benefited more than other manufacturers. Also, large businesses were more likely to benefit than small ones, although small firms seemed to have more problems and benefit the most once assistance was administered.

Business assistance programs were identified as: tax incentives, loans (direct, indirect/guaranteed, and revolving), industrial parks and enterprise zones, and training and technical assistance.

Manufacturing establishments were characterized by the following: metro/non metro, geographic region in the U.S., employment size, type (branch plant and high tech), and distressed (high poverty rates, high unemployment rates and population loss).

The study further analyzed which types of firms benefited from the specific types of assistance programs. State and local tax breaks benefited the largest proportion of nonmetro establishments (46 percent), training and technical assistance (29 percent), industrial parks/enterprise zones (21 percent), direct loans (15 percent), guaranteed loans (13 percent), revolving loan funds (9 percent).

Metrics Suggested

-
- Survey of how important each assistance program was to their business. This metric can be cross-analyzed by
 - Geographic location
 - Size
 - Type of business
 - Type of distressed area
 - Rural/Urban

Lambrecht, Johan and Fabrice Pinray. “An Evaluation of Public Support Measures for Private External Consultancies to SMEs in the Walloon Region of Belgium.” Entrepreneurship and Regional Development. 17.2 (March 2005):89-108.

Summary

This paper evaluated public support measures for private consultancies to SMEs in the Walloon region of Belgium. It presents an analysis of the supply and demand, an evaluation of the efficiency and the effectiveness of policy measures, and real policy recommendations. The paper recommends that the real needs of the entrepreneur and of the SME determine the publicly financed advisory process. It also recommends a “one stop shop” for private external consultants that help SMEs.

Metrics Suggested

- Profit
- Sales
- Market Share
- Employment

Microenterprise Fund for Innovation, Effectiveness, Learning and Dissemination (FIELD). Improving Microenterprise Training and Technical Assistance: Findings for Program Managers. 2002. 10 November 2006 <<http://www.fieldus.org/Publications/improvingmicro.pdf>>.

One of the first tasks FIELD set for itself and for the organizations who received awards from their RFPs was to answer “What makes for effective training and technical assistance?” In support of this question they also asked “What are the appropriate indicators, which intermediate measures are better indicators of financial impact on clients, and what practical approaches can programs use to document and track outcomes?”

They found that many entrepreneurs sustained and grew their businesses, while some other businesses floundered. This was mostly due to family or personal reasons. The analysis found that effective training programs acknowledge the importance of client readiness for business and offer a range of services to help clients meet these needs. It also found that adult learning theory is an effective method for designing and delivering training. Training must include soft skills

and basic competencies as well as key financial and marketing skills. Finally, FIELD learned TA should be offered within a structure that keeps clients connected to a larger program, but places the initiative on the client to receive services.

Metrics Suggested

- Completion of Training
- Development of Business Plan
- Progress in Seeking Business Financing
- Business Starts
- Business Expansions
- Business Stabilizations
- Is there an improvement in income reporting
- Increase in business assets
- Increase in personal assets, such as cars, savings, homeownership.

Microenterprise Fund for Innovation, effectiveness, Learning and Dissemination. “Assessing the Effectiveness of Training and Technical Assistance.” FIELD Forum Issue 1. 1999. 10 November 2006
<http://www.fieldus.org/Publications/Field_Forum1.pdf>.

Summary

FIELD recognizes that training and technical assistance to small businesses has a significant impact on their success, but there is little data to substantiate this to policymakers and funders. Therefore they sought to identify models and other metrics to show what makes for effective training and how that equates to lower costs. FIELD asked practitioners to propose strategies and identify indicators that could establish a link between service and outcomes. Some intermediate and final outcomes were suggested.

Suggested Metrics

- Course completion and graduation
- Pre and post knowledge testing
- Business plan completion
- Satisfaction
- Hours of Training and TA
- Sequence of Training and TA
- Business Skills acquired
- Personal effectiveness skills
- Established networks/relationships
- Business start-ups/survivals
- Sales and profit/loss
- Number of employees
- Employee wages and benefits
- Household income assets and net worth
- Change in public assistance

Oldsman, Eric. "Evaluation as an Effective Management Tool." Nexus Associates, Inc. 2003. 10 November 2006 <<http://www.nexus-associates.com/hanoi.pdf>>.

Summary

This paper critiques the Performance Measurement Framework established by the Committee of Donor Agencies for Small Enterprise Development to learn more about the performance of business development services. The paper suggests that the PMF framework can be useful as a tool for managers to improve their performance but considerable caution should be taken when using common performance standards for such diverse programs. The author recommends that evaluations be grounded in explicit theories of the particular initiatives.

Things to consider when developing metrics

- Characterize conditions within markets to learn more about their structure and performance
- Determine specific needs within a target population of firms in order to design new programs
- Establish whether existing programs are being implemented as intended
- Find out whether existing programs are achieving their objectives
- Compare existing programs to judge the relative merits of different approaches to addressing specific needs.
- Examine operations in great detail (aggregate data can mask a lot).

Oldsman, Eric. "Do Manufacturing Extension Programs Matter?" Research Policy 25.2 (March 1996):215-232.

Summary

Based on his evaluation of the New York based Industrial Technology Extension Service Program, Oldsman finds that manufacturing extension programs can have a favorable impact on participating companies. Because of the expertise of field agents, firms have been able to reduce costs, particularly with respect to direct and indirect labor, and in some instances increase revenue.

He found that MEP programs should be designed to focus on adding value rather than cutting costs; pay attention to direct, long-term assistance; and foster cooperation to compensate for the lack of internal economies of scale.

Metrics Suggested

- Refining layout of operations
- Purchased or developed new software
- Ask entrepreneurs if they had not received assistance would they have stayed in operation and in the state?
- Cost savings

-
- Direct labor productivity
 - Reduction in inventory
 - Reductions in manufacturing lead time
 - Reductions in direct labor costs per unit
 - Reductions in material costs per unit
 - Reductions in energy costs per unit
 - Reductions in indirect labor costs per unit
 - Reductions in other overhead costs

Technology Transfer

Association of University Technology Managers. AUTM U.S. Licensing Survey: FY 2004 Survey Summary. 2004. 10 November 2006
<http://www.autm.net/events/File/Surveys/03_Abridged_Survey.pdf>.

Summary

This year's Licensing Survey shows a continued steady growth in the 6 percent range for most of the performance measures that are considered meaningful indicators within the profession:

- Products available to the public
- Invention disclosures received
- Licenses and options executed
- Licenses and options active
- Licenses and options generating income
- Licenses and options generating running royalties
- Net income

One or two important performance measures, specifically U.S. patents issued, though down from fiscal year 2003, appeared to be consistent with long-term growth trends. However, the most dramatic results were the clear evidence of a recovery from the very difficult market conditions for new company startups reported in the fiscal years 2002 and 2003 Licensing Surveys. Institutions launched 23.5 percent more new startups in fiscal year 2004 than in fiscal year 2003, and the number of existing startup companies that went out of business declined more than 30 percent.

The new startup company activity reflects the changed circumstances in capital markets. The second half of 2003 will be remembered as the end of the venture industry's hemorrhaging that followed the nearly simultaneous collapse of the e-commerce, telecommunications and biotechnology markets.

The second half of 2003 also saw the first revitalization of the initial public offering market since 2000. The number of venture-backed IPOs began increasing in the second half of 2003, with 20 of the 22 venture backed IPOs for 2003 occurring in the third and fourth quarters of the year. The first two quarters of 2004 saw 34 venture-backed IPOs, and the year ended with 67 venture-backed IPOs raising \$4.98 billion vs. the \$1.4 billion raised in 2003.

Metrics Suggested

- Products available to the public
- Invention disclosures received
- Licenses and options executed
- Licenses and options active
- Licenses and options generating income
- Licenses and options generating running royalties

-
- Net income
 - New Startups
 - Number of startups going out of business
 - University equity interests in their startups
 - IPOs

Audretsch, David B., Taylor Aldridge, and Alexander Oettl. The Knowledge Filter and Economic Growth: The Role of Scientist Entrepreneurship. Ewing Marion Kauffman Foundation. 2006. 10 November 2006
<http://www.kauffman.org/pdf/scientist_entrepreneurs_audretsch.pdf>.

Summary

This study examines the prevalence and determinants of the commercialization of research by the top twenty percent of university scientists funded by grants from the National Cancer Institute (NCI). Because the two publicly available modes of scientist commercialization – patents and Small Business Innovation Research (SBIR) grants – do not cover the full spectrum of commercializing activities undertaken by university scientists, the study also includes two additional measures obtained from detailed scientist interviews: licensing of intellectual property and starting a new firm. These measures are used to assess both the prevalence and determinants of scientist commercialization of research. In particular, two distinct routes for commercializing scientist research are identified, the Technology Transfer Office (TTO) route and the entrepreneurial route, which does not involve assigning a patent to the university. This study in no way provides an assessment or judgment about the efficacy of the TTO. Rather, this study highlights the extent to which additional commercialization of research takes place, suggesting that the contribution of universities to U.S. innovation and ultimately economic growth may be greater than had previously been believed. Relevant findings include:

- Two paths for commercialization of scientist research are identified - the *TTO route* and the *entrepreneurial route*. Scientists who select the *TTO route* by commercializing their research through assigning all patents to their university TTO account for 70 percent of NCI patenting scientists. Scientists who choose the *entrepreneurial route* to commercialize their research, in that they do not assign patents to their university TTO, comprise 30 percent of patenting NCI scientists.
- Social capital enhances the propensity for scientists to commercialize their research. The impact of social capital is particularly high for the commercialization mode of scientist entrepreneurship.
- Scientists choosing the entrepreneurial route to commercialize their research, by not assigning patents to their university to commercialize research, tend to rely on the commercialization mode of entrepreneurship. By contrast, scientists who select the *TTO route* by assigning their patents to the university tend to rely on the commercialization mode of licensing.

Metrics suggested

-
- Research grants to university researchers (i.e., SBIR)
 - Patents
 - Licenses of intellectual property
 - University researchers starting new firms
 - Route by which commercialization happens- entrepreneurial or through tech transfer office

Chukumba, Celestine and Richard Jensen. “University Invention, Entrepreneurship, and Start-Ups.” National Bureau of Economic Research Working Paper No. 11475. July 2005.

Summary

This study examines the commercialization of university inventions in licensing to both start-up firms and established firms, and seek to determine when licensing to start-ups is more likely. They construct a theoretical model that predicts start-ups are more likely if their opportunity cost of development and commercialization is lower or if the technology transfer officer’s (TTO) opportunity cost of searching for a partner among established firms is higher. Using data from the Association of University Technology Managers, the National Venture Capital Association Yearbook, and the National Research Council, the study finds that inventor quality and measures of past TTO success (age, the number of disclosures, gross royalties) are all positively and significantly related to the number of licenses to both start-ups and established firms. However, it also finds that start-up activity is positively and significantly related to the S&P 500, but negatively and significantly related to the interest rate and rate of return to venture capital.

Metrics suggested

- Licensing to start-ups and existing firms
- Start-ups created
- Partnering with outside entities by tech transfer offices
- Venture capital secured by start-ups

Markman, Gideon, et al. “Entrepreneurship and University-based Technology Transfer.” Journal of Business Venturing 20.2 (2005):241-263.

Summary

The success of business incubators and technology parks in university settings is often determined by how well technology is transferred from the labs to their startup firms. University technology transfer offices (UTTOs) function as “technology intermediaries” in fulfilling this role. This article builds a framework to address two questions: (a) Which UTTOs’ structures and licensing strategies are most conducive to new venture formation; and (b) how are the various UTTOs’ structures and licensing strategies correlated with each other. The findings reveal a complex set of relationships between UTTO structure and strategies, new venture formation, and business incubation.

Based on interviews with 128 UTTO directors, findings show that whereas for-profit UTTO structures are positively related to new venture formation, traditional university and nonprofit UTTO structures are more likely to correlate with the presence of university-based business incubators. Licensing-for equity strategy is positively related to new venture formation while sponsored research licensing strategy is negatively related. The licensing-for-cash strategy, the most prevalent transfer strategy, is least correlated to new venture formation. A content analysis of UTTO mission statements also revealed an overemphasis on royalty income and an under emphasis on entrepreneurship.

Metrics Suggested

- Structure of tech transfer office (for- or non-profit)
- Incubators
- Technology parks
- Startup firms
- Business incubation
- Licensing
- University equity shares in startups
- Applied v. basic research at university where tech transfer office is located

Oklahoma Center for the Advancement of Science and Technology. Impact Report 2006. Oklahoma City, Oklahoma. January 2006. 10 November 2006 <<http://www.ocast.state.ok.us/Portals/0/docs/brochures/2006-ImpactReport.pdf>>.

Summary

The report summarized OCAST's program impacts in terms of award amounts and leveraged private and federal funds. It also gives some detail about each program, including the Oklahoma Technology Commercialization Center, whose progress is measured in terms of facilitation of capital acquisition, jobs created, and companies served.

Metrics suggested

- Amount of capital acquisition facilitated
- Jobs created
- Number of technology companies served

Palmintera, Diane. Accelerating Economic Development Through University Technology Transfer. Reston, VA: Innovation Associates Inc., February 2005.

Summary

This report highlights models of university tech transfer and commercialization, related efforts like entrepreneurship programs, and the infrastructure and environment needed to support commercialization efforts. It includes case

studies of university-based tech transfer and related economic development initiatives that lay the groundwork for state, university, and corporate actions to leverage university resources.

Practices in tech transfer at 10 universities were examined, along with related entrepreneurship programs and other programs. These case studies were analyzed to extract best practices and recommendations.

Suggested Metrics

- Corporate sponsored research
- Levels of government funding
- Seed capital and source (i.e., university-created funds or private funds)
- Innovation centers
- Number of start-ups created
- Number of start-ups assisted
- Incubators
- Research Parks
- Employment

Phan, Phillip and Donald Siegel. “The Effectiveness of University Technology Transfer: Lessons Learned from Quantitative and Qualitative Research in the U.S. and the U.K.” Rensselaer Working Papers in Economics Number 0609. Rensselaer Polytechnic Institute. April 2006.

Summary

In recent years, there have been numerous studies of the effectiveness of university technology transfer. Such technology transfer mechanisms include licensing agreements between the university and private firms, science parks, incubators, and university-based startups. This study reviews and synthesizes these papers and presents some recommendations on how to enhance effectiveness. Implementation of these recommendations will depend on the mechanisms that universities choose to stress, based on their technology transfer “strategy.” For example, institutions that emphasize the entrepreneurial dimension of technology transfer must address skill deficiencies in technology transfer offices, reward systems that are inconsistent with enhanced entrepreneurial activity and the lack of training for faculty members, post-docs, and graduate students in starting new ventures or interacting with entrepreneurs.

Metrics Suggested

- Licensing
- Science parks
- Incubators
- University-based startups
- Training provided to employees in working with entrepreneurs/start ups

APPENDIX B NON-PROJECT* STAKEHOLDER INTERVIEWS

REGIONAL STAKEHOLDERS	REGIONAL STAKEHOLDER ORGANIZATIONS
Dinah Adkins	President, National Business Incubation Association (OH)
Cathy Ashmore	Executive Director, Consortium for Entrepreneurship Education
Bill Campbell	Director, Alabama Small Business Development Centers
Caroline Carpenter	Program Director, W.K. Kellogg Foundation
Dale Carroll	President, Advantage West (NC)
Pam Curry	Executive Director, Center for Economic Options
Eleanor Herndon	Executive Director, North Carolina REAL
June Holley	Consultant, Network Weaving (OH)
Mary Hunt-Lieving	Program Officer, Benedum Foundation
Lisa Ison	President, New Century Venture Center (VA)
Kris Kimmel	President, Kentucky Science and Technology Corporation
Bill Loope	New River Community and Technical College (WV)
Justin Maxson	President, MACED
Ray Moncrief	Vice President, Kentucky Highlands Investment Corporation
Welthy Soni Myers	Managing Director for Special Initiatives, Association for Enterprise Opportunity (VT)
Becky Naugle	Director, Kentucky Small Business Development Centers
Kim Pate	Vice President, CFED
Stuart Rosenfeld	Principal, Regional Technology Strategies (NC)
Greg Rutherford	President, York Technical College (SC)
Jeff Spencer	Executive Director, Ohio Valley Regional Development Commission
Kerwin Tesdell	President, Community Development Venture Capital Alliance (NY)
Jesse White	Director, Office of Economic and Business Development, University of North Carolina
PROGRAM LEADER	STATE
Denise Ambrose	Program Manager, Virginia Department of Housing and Community Development
Bonnie Ammons	Senior Program Manager, Office of Community Grant Programs (SC)
Todd Christiansen	Associate Director, Virginia Department of Housing and Community Development
Olivia Collier	ARC Program Manager, North Carolina
Bonnie Durham	ARC Program Manager, Alabama
Al Feldstein	ARC Program Manager, Maryland
Neil Fowler	ARC Program Manager, Pennsylvania
Ralph Goolsby	ARC Program Manager, West Virginia
Elisabeth Kovacs	ARC Program Manager, South Carolina
Rick Meredith	Assistant Commissioner, Tennessee Department of Economic and Community Development
Peggy Satterly	ARC Program Manager, Kentucky
Sara Stuckey	Retired ARC Program Manager, North Carolina
James Thompson	ARC Program Manager, Georgia
Kyle Wilbur	ARC Program Manager, New York

*Some stakeholders were from organizations that received ARC funding for entrepreneurship projects but were included because they (1) had broad and unique knowledge of some program area and/or entrepreneurship, (2) the organization's project was not included in the sample, and/or (3) the individual was not interviewed as follow up with grantees included in the sample.

Appendix C PROTOCOL FOR PROJECT LEADERS

Enter the following data from the project folder:

Project Number: _____ Project Status (circle one): I
C1 C2

Project Title: _____ Project Type (circle one): C N I
E TA

Grantee: _____

Year Project Initiated: _____ Number of Years of ARC Funding:

Name of Person Interviewed: _____ Phone/Email:

Organization of Person Interviewed: _____

ARC Funds Invested: _____ Leveraged

Funds: _____

Project Summary:

Stated goals of the project:

Number of Businesses Served:
Number of jobs created
Jobs retained:
Amount of leveraged private investment:

For all calls:

1. Were you involved with this project and/or are you knowledgeable about it? (If no, get referral.) If yes, in what capacity did you work with the project?
2. What is your background? (Try to understand the importance of their leadership.) Alternative: Tell me a little about your background and experience with projects like this in the past. How did you get involved in this project? How long have you been involved with the relevant community? If not long → have you had similar experiences in your previous communities?

-
3. What was the problem that you were trying to address with this project?
How were you trying to address this problem?
 4. Did you think the project was a success? Why or why not? What were the elements of success/failure?
 5. What specific results or outcomes were achieved through this project during the period of ARC investment?
 - a. Are there specific results that you believe were particularly important? If so, why?
 - b. Are there specific results that were unintended or unexpected?
 - c. Do you feel you achieved the objectives set forth for this project?
 6. Has the project continued after ARC funding ended?
 - a. If yes, how was the project funded after ARC?
 - b. What outcomes have you experienced post-ARC?
 7. What value did this project create in your service area/community?
 - a. Are there specific quantifiable changes that you have seen in the community because of this project?
 - b. Are there specific qualitative changes that you have seen in the community because of this project?
 8. Is there anything you learned from this project that would be useful to others who are attempting to do something similar in their communities?
 9. Is there anything else you would like to add about the project and its implementation in your service area/community?
 10. Is there anyone else who is familiar with this project and its broad impacts on the community and/or the region who might provide us with useful insights? (If yes, collect contact information.)

GO TO SPECIFIC QUESTIONS FOR EACH TYPE OF PROJECT

Capital

	At ARC Project End	After ARC Funding
Total number of loans		
Number of years operated		
Total \$ amount of loans		
Number of funds created		
Size of Fund(s)		
Distribution of loans by sector		
\$ funds leveraged		
Jobs created		
Jobs retained		
Percent of portfolio companies still in business		
*Wages, income per job or total		

Comments:

Sectors

	At ARC Project End	After ARC Funding
Number of participants		
Number of members		
Jobs created		
Jobs retained		
*Increase in interfirm collaboration		
*Change in total sector sales		
*Number of business start-ups in targeted sector		
*Number of participants retained in service area		
*Number of participants still in business		

Comments:

Incubators

	At ARC Project End	After ARC Funding
Number of current clients		
Number of clients served		
Number of graduated firms		
Number of clients still in business		
Amount \$ leveraged by incubator		
*Number of graduates retained in service area		
Jobs created while in incubator		
Jobs created after graduation		
Jobs retained while in incubator		
Jobs retained post-graduation		
\$ capital raised by tenants		

Comments:

Education

	At ARC Project End	After ARC Funding
Number of participants enrolled		
Number of participants completing program		
Number of schools offering entrepreneurship education pre and post		
Number of schools in service area, pre and post		
Change in student performance pre and post		
Number of student businesses started		
Number of students that stay within the service area		
*Increase in awareness of business concepts		
*Increase in number considering business creation as a career option		
* Change in community attitudes toward entrepreneurship		

Comments:

Technical Assistance

	At ARC Project End	After ARC Funding
Number of business starts		
Number of business expansions		
Number of clients		
*Number of discouraged clients		
Number of clients still in business		
Number of jobs created		
Number of jobs retained		
*Firm performance (\$ capital raised)		
*Number of clients retained in service area		
*Number of clients still in business		

Comments:

APPENDIX D PROTOCOL FOR NON-PROJECT STAKEHOLDERS

1. Background information on the stakeholder
Name:
Title:
Organization:
2. In what ways are you (or have you been) involved with entrepreneurship and/or economic development in the Appalachian Region?
3. Were you directly involved in any specific projects funded by the ARC Entrepreneurship Initiative? If yes, please identify the project(s):
4. [For State Alternates Only] What was your state's strategy for engaging with ARC's Entrepreneurship Initiative? (Was this initiative a priority in your state? Was there a single statewide project approach or did individual communities/organizations propose projects?)
5. [For State Alternative Only] Did your state's participation in ARC's Entrepreneurship Initiative lead to any change in the policy environment for supporting entrepreneurship? If so, please explain.
6. What do you think are the most significant region-wide impacts associated with ARC Entrepreneurship Initiative projects generally? Were there specific community or project impacts that you can identify?
7. How have these broader impacts been measured?
8. Would you provide some concrete examples of these broader impacts?
9. In your view, what has limited the broader impacts associated with the ARC projects?
10. In your view, what has contributed to the broader impacts associated with the ARC projects?
11. Do you think the ARC Entrepreneurship Initiative projects have had an impact on creating a more supportive climate for entrepreneurs in the region? Why or why not?

12. Considering the broad impacts associated with the ARC Entrepreneurship Initiative you have identified above, what do you think are some of the most valuable or effective performance metrics for capturing these impacts?