

U.S. Economic Development Administration University Centers: Leveraging Federal Dollars Toward Best Practices

G. Jason Jolley

MPA Director and Assistant Professor

Behzad Taimur

MPA Graduate

Voinovich School of Leadership and Public Affairs

Ohio University

Athens, Ohio 45701

Corresponding author: G. Jason Jolley: jolleyg1@ohio.edu

Executive Summary: This paper reviews the U.S. Economic Development Administration (EDA) University Center (UC) program, which encompasses 58 UCs across EDA's six regions. A review of each UC's activities reveals a diverse, and often specialized, expertise for UCs that reflects and integrates best practices in economic development. Older UCs more often focus on traditional economic development activities, such as technical assistance to organizations in their service region, while newer UCs reflect learning and best practices by focusing on entrepreneurship support, targeted commercialization of research, workforce development, and business counseling associated with Third Wave strategies. This work informs not only the scholarly community about the depth and diversity of the UC program, but also economic development practitioners who may work with UCs on economic development initiatives.

I. Introduction

The role of universities in economic development and, more broadly, community development, has been well studied. Faculty expertise, sophisticated laboratories, specialized research, commercialization capabilities, outreach programs, cooperative extension services, and technology transfer are among the diverse tools universities leverage to contribute to economic development. Federal government funding through research grants and contracts supports and encourages many of these efforts. This paper focuses on a small, but important, federal government

initiative, the U.S. Department of Commerce Economic Development Administration (EDA) University Center (UC) program. Despite its nearly 50-year history, the UC program has been the subject of few academic studies. The most recent detailed academic study of UCs was conducted by Fatzinger (1979), and the most recent EDA funded study of the UC program occurred in 2012–2013 when EDA commissioned SRI International (SRI International, 2014) to evaluate best practices in the UC program.

This paper traces the history of the UC program and integrates many of the findings from the SRI International

report on the diverse set of economic development activities undertaken by UCs across the country with existing best practices in university-supported economic development. It informs not only the scholarly community about the depth and diversity of the UC program, but also economic development practitioners who may work with UCs on economic development initiatives.

The EDA awards annual grants to 58 UCs across 45 states and Puerto Rico. The EDA draws its authority to establish UCs and award grants from section 207 of Public Works and Economic Development Act of 1965 (42 U.S.C., section 3147), which is the authorizing statute of the EDA. The grants are awarded through an open and competitive process in five-year cycles across all six economic development regions as designated by the EDA. Each region conducts its own competition and enjoys complete autonomy in its award of grants.

The average EDA award to a UC was \$132,435 per year in 2013 (Department of Commerce, 2013). The highest award for same year was \$240,000, and the lowest was \$96,766. Most centers (91%) receive at least some manner of cost share match from their universities. About half of UCs are housed at large public universities with more than 20,000 students, while a similar number of centers are at smaller public universities (SRI International, 2014). Only a few (e.g., Becker College, Duquesne University) are located in private universities or small colleges.

In awarding these grants, grantee institutions are expected to support regional economic development, which they have traditionally done through provision of technical assistance to organizations in their service regions. The role of UCs has been evolving over time, and now includes entrepreneurship support, targeted commercialization of research, workforce development, and business counseling services, among others.

The UCs program has remained understudied even after nearly five decades of operation. Nearly all of readily-available literature on UCs are internal EDA reports. Thus, this paper draws on these publications, such as the 58 UC description papers available on the EDA website, as well as secondary data available in academic research papers published in peer reviewed journals, to construct its narrative. This paper first provides an overview of the program, relates the activities of the UCs to best practice and theory, and describes how UCs advance the federal economic development agenda in its service regions. This paper concludes with the results of this analysis, reflecting on policy implications for UCs and regional economic development strategies.

II. Universities and Economic Development

Institutions of higher education have long been recognized as important contributors to economic development. A National Center of Education and the Economy (2007) report noted that impoverished regions find it difficult to retain talented, trained, or university-educated human capital, even when there is a university within the region. A local university-led outreach can help ameliorate, if not reverse, the drain, thus stimulating local economic growth (National Center of Education and the Economy, 2007; PACEC, 2010).

A growing body of evidence has pointed to the need and opportunity for deeper engagement with institutions of higher education for regional economic development (Franklin, 2009). Several decades ago, the perception existed that universities had failed to engage in regional economic development. This was not lost on policymakers. In 1999, the now-famous Kellogg Commission on Future of State and Land-Grant Universities echoed these views:

One challenge we face is growing public frustration with what is seen to be our unresponsiveness. At the root of the criticism is a perception that we are out of touch and out of date. Another part of the issue is that although society has problems, our institutions have “disciplines.” In the end, what these complaints add up to is a perception that, despite the resources and expertise available on our campuses, our institutions are not well organized to bring them to bear on local problems in a coherent way. (Kellogg Commission on the Future of State and Land-Grant Universities, 1999)

In response, universities have become engaged in a variety of activities to support regional economic development. Specifically, Bagchi-Sen and Smith (2012) identified “(i) academic entrepreneurship and commercialization of university intellectual property and (ii) university-industry collaboration” as the two key categories of regional development activities administered by UCs (p. 450). The value of academic institutional support has also been recognized by industry, exemplified by a dramatic increase in industrial funding to research universities between 1970 and 2001, when it touched \$2.2 billion in absolute terms (Bagchi-Sen and Smith, 2012 p. 448). Lendel (2010) refers to the bundled nature of this multiplicity of activities as “university products, which are the channels through which regional universities affect regional economies” (p. 210). The presence of regional universities and their respective bundle of university products has a positive effect on employment growth in regional economies (Lendel, 2010).

Moreover, knowledge transmission is a key component of these university products. Universities are seen as “primary social institutions dedicated to the creation, preservation, transmission and new application of knowledge” (Bowen, 2007, p. 207). Knowledge, in turn, is viewed as an explicit independent factor in regional economic growth (Romer, 1986). Bowen (2007) extrapolates this when he states:

increases in capital investment and the size of the labor force will help a region to grow and develop economically, and will do so independently of the knowledge base. But eventually diminishing marginal returns will make further capital investments or increases in the labor force unproductive. (p. 36)

Given the university focus on knowledge creation and dissemination, its role has been enhanced with the growth of the knowledge-based economy. Etzkowitz, Leydesdorff, and their colleagues referred to this as the ‘Triple Helix of university-industry-government relations’ (see Etzkowitz & Leydesdorff, 2000; Etzkowitz, Webster, Gebhardt, & Terra, 2000; Leydesdorff & Etzkowitz, 1996). Leydesdorff and Etzkowitz (2000) indicated how universities play an increasingly important role as part of a network of institutional arrangements among government, industry, and academia. More contemporary economic development practices have centered on strong knowledge capital. Benneworth and Hospers (2007) posit that knowledge capital is viewed as a facilitator of innovation for regional economies.

III. History of the UC program

The university centers program was created in 1966. However, in its initial decades, it remained limited in its scope and scale, funding a select few large public universities in annual cycles, with a disproportionate bend toward supporting economic development institutions and programs. The private sector was largely left out, and there was great emphasis on provision of technical assistance to industry. However, this began to change as shifting circumstances led to deeper linkages between educational institutions and industry.

Lee (1996) traced this deepening of collaboration between higher educational institutions and industry to the closing decade of the Cold War. The U.S. had built “a large reservoir of scientific and technological resources, largely in its national and industry research and development” through the Cold War years (Lee, 1996, p. 843). As the world began to emerge from the shadow of the Cold War, the technological and industrial competitiveness of the U.S. began to decline in the global economy, and higher education institutions began to come under pressure to increase flows of new knowledge, technology, and a better

skilled workforce (Siegel, Waldman, Atwater, & Link, 2003). Therefore, at the time, scientific knowledge and new technologies gained a greater focus as a means to further economic development.

Subsequently, with increasing federal interest in utilizing resources of universities to support industry and growth, Congress enacted a string of legislation aimed at fostering collaboration between educational institutions and industry. For instance, in 1980, the Stevenson-Wylder Technology Innovation Act became the first technology transfer law ever enacted in the U.S., requiring federal laboratories to actively participate in technology transfer activities. Later that year, the Bayh-Doyle Act was adopted, enabling inventors working with federal contracts or grants to pursue ownership and patents for technology they invented, in lieu of the federal government gaining ownership, as had been the practice up to that point (Lee, 1996; Siegel, et al., 2003).

The idea of federal-led or federal-pioneered creation of collaborative linkages between educational institutions and business or industry is not, in itself, new (Franklin, 2009; Thelin, 2004). For example, in 1862, Congress passed the now-famous ‘Merrill Act,’ which made possible the ‘donation’ of ‘Public Lands’ (meaning federal land) to states in order to establish universities for “the benefit of agriculture and the mechanic arts.” Similarly, the Hatch Act of 1887 (not to be confused with the Hatch Act of 1939 which barred civil servants from taking part in partisan political activities) made for the establishment of agricultural experimentation ‘stations’ in universities. Further, in 1914, Congress passed the Smith-Lever Act, which created a system of cooperative extension services connected to agricultural universities for information dissemination in terms of developments in the field of agriculture, among others. By 1954, the tradition of forging collaborative links between education and industry had been formalized by the Eisenhower Administration, when President Eisenhower issued an executive order to federal agencies to support basic research (Clinton & Gore, 1993). However, at the time, there was a disproportionate emphasis on supporting the defense industry given the Cold War context.

In 1993, under President Clinton, the Office of the President issued a report titled ‘Technology for America’s Economic Growth: A New Direction to Build Economic Growth,’ which signaled a more concerted shift from Eisenhower-era orientation, and toward a deeper engagement between educational institutions and civilian industry. Although this report does not directly mention the UC program, it does express a clear intent of using educational institutes for strategic advancement of federal economic development agenda (Clinton & Gore, 1993).

Since this essential point of departure during the Clinton Administration, the UC program has deepened, expanded, and evolved in response to the changing dynamics of the global economy. As the 1990s progressed, economic development began to be framed in terms of building capacity for people and businesses by the federal government. More recently, there has been a growing focus on innovation, entrepreneurship, and technology transfer (SRI International, 2014), which has been matched by a shifting focus of the UC program toward these topics.

In line with this policy shift, the EDA changed the UC program from an annual review-based funding cycle to a competitive grant program, open to private sector institutions, both large and small, which awards three-year grants. The three-year cycle was changed to a five-year cycle in 2012, with an annual review of each center done by the program manager to approve funding for the following year.

IV. Federal Economic Development Goals, UC Practices, and ED Theory

The stated goal of the EDA is to “lead the Federal economic development agenda by promoting innovation and competitiveness, preparing American regions for economic growth and success in the worldwide economy.” This statement clearly emphasizes innovation and enhancement of competitiveness as priority areas for the federal government. Similarly, EDA investment priorities, as stipulated in the annual report of the EDA for 2013, the latest such report available, included collaborative regional innovation, public private partnerships, global competitiveness, and economically distressed and underserved communities (Department of Commerce, 2013).

The EDA leans on its UCs program to achieve the above and leverage university assets to support regional growth. In the given context, the EDA states in its 2013 annual report:

Potential university-based support for economic growth includes the commercialization of research, the conversion of intellectual property and ideas into products and services, and the support of regionally-owned strategies that support business expansion and job creation. Additionally, universities facilitate environments conducive to trade and global exports by providing services for businesses to connect to international markets. (Department of Commerce, 2013)

Finally, the stated goal of the UCs program itself is to provide “resources to develop, implement, and support regional strategies to promote job creation, the development of high-skilled regional talent pools, and

business expansion in a region’s innovation cluster.” The EDA policy papers on the UC program further state that the goal of the program is not explicitly job creation, which is economic growth and not development, but rather the improvement “of capacities that expand economic actors’ capabilities,” the minimization of risk, and utilization of private sector skills and competencies.

As the quotations demonstrate, there is a clear parallel between the stated goals of the EDA, its investment priorities, and its outlook on institutions of higher education. The EDA views universities as a means to foster innovation, support commercialization, aid entrepreneurship, offer business counseling to local enterprises, enhance national global competitiveness through technology transfers and workforce development, and forge strategic public-private and industry-academia relationships and collaborations.

It is this need that the UC program strives to fill by forging critical connections and nurturing strategic collaborations with industry and enterprise to spur regional economic development. There is tangential evidence to support the necessity and utility of such programs. Businesses and industry have been shown to have a proclivity for turning to academic institutions for their research-related needs (Mansfield 1991, 1995). Similarly, dwelling on the matter of research-based collaborative links between institutions of higher education and business, Leyden and Link (2013) thus expounded:

if a university seeks to act as a complement to private-sector collaborative (research and development), it needs to structure its program so that business enterprise revenues increase and business enterprise (research and development) costs rise by a smaller proportion than revenues increase, if they rise at all (and a fall would be better). Such a structure is consistent with both business enterprise and university interests, but is only likely to be feasible if the university is subsidized. (p. 814)

Given the existing propensity for industry to turn to educational institutes for support, there is a need to leverage these interactions for positive social benefits as well as private industry gain. This should be especially true for regions of economic distress where capital may be limited. In this respect, Goldstein and Drucker (2006) have shown that university-industry collaborations have the most substantial impacts in small- and medium-sized regions that are more prone to economic distress. Indeed, the UCs program has grown in recent years, increasingly focused on such regions, as following sections will show.

The broadening of the UC program came in conjunction with the movement toward including ‘Third-

Wave’ economic development efforts focused on industry clusters, networking, and technology in addition traditional tools such as tax incentives for business attraction/retention, public infrastructure, etc. (Bradshaw & Blakely, 1999). Such movement away from traditional strategies is consistent with the movement of local governments toward broader strategies (Osgood, Opp, & Bernotsky, 2012; Zheng & Warner, 2010;)

Economic development researchers often cite the three waves of focus of economic development strategy. First, strategies looked outward to attracting outside business through various incentives. Second, practices shifted to the aim of growing and retaining existing businesses. Third, the focus once again shifts to a community approach of business development and innovation (Osgood, Opp, & Bernotsky, 2012). Zheng and Warner (2010) found that the evolution of the economic development strategies often results in an approach that is a compilation of all three waves. Depending on the focus of the region and which ‘wave’ the area currently falls in, the role of each particular UC can vary.

Building upon this discussion, Gunasekara (2006) categorizes the roles of universities in economic development into two categories: developmental and generative. Developmental universities, according to

Gunasekara, are those that focus on university engagement through knowledge-based regional involvement. Generative organizations are those that are more centered on building the relationship between the university, industry, and government through knowledge capitalization, such as university spinoffs and firm formation from university research (Gunasekara 2006).

The stated goal of EDA investment is the establishment of a foundation for sustainable economic growth and the construction of durable regional economies, by fostering innovation, regional collaboration, and empowerment of local communities to implement their own economic development and revitalization strategies. As a means to realize its vision, the EDA believes in investing in distributed regional engagement, which is a relatively new, but growing phenomenon (Franklin, 2009). As a distributed, localized, autonomy-enabled, and in many ways bottom-up effort, the UC program is an important column in the edifice of this broader vision.

The EDA presently administers 58 University Centers, which are spread across its six regions. Table 1 presents a state-by-state breakdown of each EDA region, provides the founding date of the UC, and documents the primary function (or functions in the case of a tie) and percentage of effort on that function for each UC.

Table 1. EDA University Centers by Region

Austin Region Centers	Founded	Primary Activity (Percentage)
University of New Orleans	1978	Technical assistance (50%)
Arkansas State University	1989	Technical assistance (80%)
Mississippi State University	1989	Expansion within industry clusters (35%)
University of Arkansas at Little Rock	1996	Technical assistance / Information dissemination / Training / Applied research (25% each)
Louisiana Tech University	2004	Technical assistance (70%)
Northern New Mexico College	2004	Technical assistance (50%)
Southwestern Oklahoma State University	2004	Technical assistance (70%)
Lamar University	2010	Technical assistance (70%)
Rogers State University	2010	Technical assistance (50%)
Texas A&M University – Corpus Christi	2010	Technical assistance (60%)
West Texas A&M University	2010	Incubator facilities (40%)

Table 1. EDA University Centers by Region (continued)

Atlanta Region Centers	Founded	Primary Activity (Percentage)
Auburn University	1976	Entrepreneurship and commercialization (40%)
Georgia Tech	1982a	Innovation based ecosystem support (72%)
University of Florida	2002	Commercialization (50%)
University of Kentucky	2002	Start-ups (50%)
University of South Carolina	2006	Commercialization (50%)
University of Tennessee	2006	Innovation capacity / Company innovation / Entrepreneurship and commercialization (33% each)
Western Carolina University	2009	Commercialization (80%)
Fayetteville State University	2012	Business expansion (70%)
University of North Carolina	2012	Technical assistance (60%)

Chicago Region Centers	Founded	Primary Activity (Percentage)
Cleveland State University	1985	Entrepreneurship / Innovation and regional commercialization (40% each)
Purdue University	2005	Innovation networks / Practitioner tools (35% each)
University of Minnesota	2008	Technical assistance (70%)
Bowling Green State University & Ohio University	2011b	Entrepreneurship and commercialization (70%)
Michigan State University	2011	Knowledge transfer / Innovation / Technical assistance (33% each)
University of Wisconsin, Milwaukee	2011	Local government assistance (40%)
University of Illinois	2012	Entrepreneurship (50%)

Table 1. EDA University Centers by Region (continued)

Denver Region Centers	Founded	Primary Activity (Percentage)
Iowa State University of Science and Technology	1980	Technical assistance (70%)
Montana State University & University of Montana	1986	Technical assistance (50%)
Kansas State University	2005	Technical assistance (70%)
Creighton University School of Law	2007	Microentrepreneurs (85%)
University of Missouri	2007	Technical assistance (70%)
University of Wyoming	2007	High growth companies / Making connections (40% each)
University of Kansas	2008	Technical assistance (70%)
South Dakota State University	2010	Applied Research (50%)
University of North Dakota & North Dakota State University Research and Technology Park	2010	Entrepreneurship (70%)

Philadelphia Region Centers	Founded	Primary Activity (Percentage)
University of Southern Maine	1974	Innovation clusters and technology commercialization (80%)
Virginia Polytechnic Institute and State University	1980	Commercialization (50%)
Rutgers, The State University of New Jersey	1982a	Technical assistance (85%)
The Pennsylvania State University	1982a	Commercialization (75%)
University of Puerto Rico	1986	Entrepreneurship / Start-ups (30% each)
University of Connecticut	2005	Entrepreneurship / Commercialization (40% each)
Becker College	2011	Technical assistance (60%)
Delaware State University	2011	Entrepreneurship (70%)
Duquesne University	2011	Entrepreneurship (80%)
Marshall University	2011	Technical assistance and entrepreneurship (50%)
Northeastern University	2011	Technical assistance (80%)
Syracuse University	2011	Entrepreneurship (80%)
Temple University & Clark University	2011	Entrepreneurship / Technical assistance (50% each)
University of Maryland & Morgan State University	2011	Entrepreneurship (50%)

Table 1. EDA University Centers by Region (continued)

Seattle Region Centers	Founded	Primary Activity (Percentage)
University of Hawaii	1980	Technical assistance (45%)
California State University, Chico & Fresno	1986	Entrepreneurship / Innovation and regional commercialization (40% each)
Washington State University, Pullman	1990	Innovation and technical assistance (75%)
University of Alaska	1992	Technical assistance (60%)
University of Nevada	1992c	Commercialization / Innovation clusters (50% each)
Boise State University	1996	Innovation (40%)
University of Oregon	2009	Innovation (60%)
Northern Arizona University	2012	Technical assistance (50%)

Source: Created by author based on data from SRI International (2014)

^a Listed as being a Center for “> 30 years” (Appendix A) in the SRI report. No specific date is given.

^b Bowling Green State University and Ohio University self-report their University Center as 20 years old as it was originally founded in conjunction with Miami University (no longer a partner) in 1996.

^c Listed as being a Center for “> 20 years” (Appendix A) in the SRI report. No specific date is given.

As noted in the SRI International (2014) study, older institutions with long-standing UCs have a more traditional economic development emphasis. Such institutions often operate their centers as part of a broader and more diverse set of long established programs or initiatives. More newly established centers focus on “entrepreneurship and business support,” but the suite of services is highly variable and often specialized (SRI International, 2014, p. vii). The present review of the UCs program has identified a broad heterogeneity in center activities across UCs through the expanse of the U.S. The EDA claims that this heterogeneity is a result of its program design and implementation (SRI International, 2014). Whereas the

funding announcements are circulated from Washington D.C., they are interpreted by the EDA regional offices which administer grant competitions, and then award grantees. At the national level, specific characteristics and needs of each regional economy, and the type, capabilities and specializations of institutions of higher education, as may be present in each region, help inform interpretation of Washington D.C. announcements. At the regional level, individual award grantee institutions tailor program implementation to suit local needs “in ways consistent with [their] institutional strengths” (SRI International, 2014).

Table 2: EDA University Center Activities

Category	Number of University Centers	Percentage
Applied Research	44	75.90%
Economic Analysis	16	27.60%
Entrepreneurship support	51	87.90%
Incubator services	16	27.60%
Information Dissemination	58	100%
Innovation and Commercialization	37	63.80%
Networking/Matchmaking	24	41.30%
Strategic Economic/Business Plan Development	31	53.50%
Technical Assistance	48	82.80%
Workforce Development	20	34.50%
Other	21	36.20%

Offering entrepreneurship support (87.9%) and technical assistance (82.8%) remain, by far, the most common activities UCs partake in, followed closely by applied research. In this context, it is important to add that numbers provided above meant that 31.4% of UCs which provide entrepreneurship support, also offer incubator services.

Furthermore, nearly two-thirds (63.8%) of the UCs support innovation and commercialization, and more than half (53.5%) offer direct support for business development. In addition, nearly half (41.3%) aid local communities in networking with relevant economic partners, often offering matchmaking services. Finally, over a third (34.5%) directly invest resources in regional workforce development.

Beyond the heterogeneity in UC activities, there is regional variance in terms of the distribution of UCs. Two EDA regions (Philadelphia and Seattle) have as many UCs as number of states within them, one region (Denver) has fewer UCs than number of states, and three regions (Atlanta, Austin, and Chicago) have more UCs than number of states. Within the regions of disproportionate distribution, the Austin region has the highest concentration of UCs. Five states, namely Colorado, New Hampshire, Rhode Island, Utah, and Vermont, and the District of Columbia, have no UC at all. Conversely, four states (Arkansas, Kansas, Ohio, and Oklahoma) have two UCs each, and four states (Massachusetts, North Carolina, Pennsylvania, and Texas) have three UCs each.

The shift in EDA UC practices toward entrepreneurship and specialized business support reflects the emergences of Third Wave economic development strategies and the Triple Helix of closer relationships between university, government, and industry.

For example, Northeastern University and Creighton University offer legal services to help their clients commercialize their innovations and technological products. Mississippi State University focuses its attention upon identifying, and then supporting, innovation clusters in the state. Arkansas State University provides leadership training to business actors and has a technology incubator for tech-linked start-up firms. The UC co-hosted by Temple and Clark Universities (which are situated in two different states, making this center the only bi-state UC in the EDA administration) draws on specializations of the host institutions and focuses on smart phone application and maps development, which is a rather novel case amongst the UC program.

Other UC's focus on specific opportunities or challenges related to their state and/or service territory. For instance, the UC at Arkansas State University has

significant emphasis on fostering regional disaster preparedness due to frequent disasters in the state. Further, Northern Arizona University and Southwestern Oklahoma State University have specialized plans to help U.S. military veterans develop and run businesses, due to their large presence in the region. The centers at Northern New Mexico College, University of Minnesota, University of Nevada, and Northern Arizona University all have special emphasis on engaging Native American rural communities in their respective services regions.

An understated role of the EDA UC program as it is currently constituted is EDA's willingness to support UC at small and medium universities falling outside of the 'Doctoral: Highest Research' classification as part of the Carnegie Classifications. As Etzkowitz and Leydesdorff (2000) noted, "politically directed funds" to schools with limited research experience, even one-time funds, allow universities to "rapidly build up competencies" (p. 117). EDA's infusion of federal dollars provides resources to universities that may be less competitive for other federal research grants and links these EDA funds (although not all are research oriented) to "new sources of legitimation such as regional development" (Etzkowitz & Leydesdorff, 2000, p. 117). This federal support of UCs at smaller institutions builds specialized competencies, raises the level of support and ties to regional economies –often in economically distressed areas in need – supports specialized entrepreneurship, and, in the long-term, allows these universities and their surrounding region to better compete for future dollars as they build the knowledge economy.

V. Conclusion

This paper has broadly reviewed the University Center (UC) program of the Economic Development Administration (EDA). It has briefly traced its history, and contextualized its existence in broader needs of the U.S. economy as it grapples with the challenges of an increasingly globally-competitive international market. Finally, it has sketched a general picture of the federal economic development agenda, and contrasted this with the activities of the UCs, which are administered by the program in light of the evolution of economic development practice and the role of universities in advancing regional development. In this, the researchers have found extensive alignments, which, in turn, demonstrate that the program forwards federal agenda at the regional and local level.

However, there are numerous and multifaceted differences in what individual UC activities are undertaken and how they conduct them. Often, such variances are a result of local-level reinterpretation of federal award

circulations to either suit specific needs and fit local economic contexts, or more fully utilize institutional competencies, capabilities, or specializations. This paper has also shown that there are important regional differences in UC activities.

Nevertheless, since this study has been exploratory, and its intent has been to provide a broad overview of the UC program and create conceptual space for future research, it has not explored a number of questions which are relevant to the context, and require future exploration and study. There is a need, for instance, for a more in-depth study of the actual impact, in terms of scope and scale, of the program on the communities it services, and its success in fostering regional economic development beyond what theoretical linkages would suggest. Moreover, there is need for studying in greater detail the interplay of local and regional economies and their specific needs, and how they

shape the local interpretation, and then implementation, of the program.

Acknowledging the differences between regions, it is a great strength that roles of individual UCs are reflective of the needs and economic development focus strategies of their particular area. Research has suggested that the focus of economic development strategies and practices evolves through a wave-like pattern, and the diverse roles and actions taken by different UCs in varying regions is reflective of that. Federal legislation can directly or indirectly impact the actions of EDA university centers. Given the variation in regional economic strategy needs, legislators should proceed with caution with blanket, all-encompassing economic development policy initiatives that ignore regional nuances and opportunities for knowledge creation.

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