

All Hands on Deck:

The Democratization of Economic Development

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Abstract

Recent decades have witnessed a revolutionary institutional change in the economic development sector, characterized by ideological, strategic, and pragmatic shift in policy and practice has been profound. I call this transition the democratization of economic development. Drawing extensively from historical analysis and qualitative and quantitative data on various programs, activities, and events in three large contiguous states—New York, New Jersey, and Pennsylvania—this paper traces the causes and consequences of the democratization of economic development and discusses their individual, organizational, and societal implications.

INTRODUCTION

The last couple of decades have witnessed a revolutionary institutional change in the economic development sector, characterized by an ideological, strategic, and pragmatic shift in policy and practice. As a result, traditional routines and practices that hitherto informed and guided economic development approaches and strategies have been delegitimated and replaced with new organizational forms and standards that enable the attainment of new desirable social and economic outcomes. Beginning in the 1970s but becoming more prevalent and persistent in the 1980s, economic development techniques and systems have increasingly transitioned from centralized, bureaucratic, and authoritarian systems to decentralized and democratic structures that covet collaborative arrangements among diverse organizations including governments, business/industry, academic and research institutions, and financial institutions, particularly, venture capitalists and business angels. Consequently, previous conventions or customs that emphasized modern industrial capitalism and which were reflected by the recruitment and retention of large industrial establishments (hereafter LIEs) have been supplanted with research and development models and activities that catalyze and capitalize scientific advancement and technological innovation.

I call these transitions the “democratization” of economic development not only because of the mass mobilizing of entrepreneurs, early stage firms, small businesses, and the aggressive solicitation of academic and research institutions, business/industry, and financial institutions by governments but also the intense advocacy and mass collaboration among them. By democratization, I also mean emerging economic development techniques and methods increasingly create and expand opportunities as well as allocate resources for diverse actors to assume the collective authority, responsibility and accountability for creating employment, generating income, and accumulating wealth in their respective regions and communities. Specifically, the democratization of economic development has been accomplished with the aggressive advancement of science and technological innovation through a myriad of research and development programs, activities, and events that facilitate the development and commercialization of new products, new technologies, new firms, among others. Although it has profound implications for individuals, organizations, local and regional economies, and the society at large, regrettably, research has paid less attention to this growing phenomenon.

In this paper, I examine the causes and consequences of the democratization of economic development by analyzing why and how various syndicates of stakeholders, constituencies, and interest groups have been mandated to assume the authority, responsibility, and accountability for creating jobs, generating income, and accumulating wealth for themselves and their communities. The concept of democratization I adopt in this paper is both quantitative and qualitative. Quantitatively, besides the increasing number and diversity of individual and collective actors sharing the collective responsibility for facilitating economic development, it documents that the amount of resources and taxpayers’ dollars allocated to underwrite programs, activities, and events have reached unprecedented levels. Qualitatively, it shows that economic development is increasingly becoming meaningful and compelling to diverse stakeholders, constituencies, and interest groups as well as intensifying the pace and competition among states. As a result, new organizational forms are created and new governance mechanisms or compliance standards are advanced to facilitate the process. In addition, while previous decades emphasized the pursuit of modern industrial capitalism by competing for LIEs, in contrast, new and emerging models demonstrate a preference for the scientific advancement and technological innovation. Moreover, these new and emerging models value and leverage collaborative

arrangements among governments, business/industry, and academic and research institutions, among others, in order to bring a holistic, community-orientation and collective action to the economic development agenda. Conceptually, the democratization of economic development is grounded on three interrelated constructs—empowerment, representation, and participation.

The central thesis of this paper is that institutional change in the economic development sector, as depicted by the democratization of economic development, has been revolutionary, and marked by an ideological, strategic, and pragmatic shift in policy and practice. Ideologically, it has been marked by the emergence and development of new economic values and norms that promote scientific advancement and technological innovation in contrast to previous eras that emphasized modern industrial capitalism. Strategically, it has been characterized by a shift from emphasis on the recruitment and retention of LIEs to new and emerging models that aggressively promote entrepreneurship and stimulate new business formation and covet entrepreneurs, small, or early-stage high tech firms. Finally, and pragmatically, the enactment of several legislations and the allocation of resources mandated the creation of new organizational forms, and accelerated the diffusion of novel forms of compliance in the sector while at the same time linking macro policy formulation at the regional level with strategic implementation at the micro level.

We use the creation and implementation of various organizations, organizational forms, and practices to illustrate the democratization of economic development via the discovery and validation of innovative concepts and technologies with the objective of accelerating the development and commercialization of new products, new services, new technologies, and new business models, etc.

Several contributions are made by this paper. Besides its obvious relevance for policy and practice, the democratization of economic development has been marked by the delegitimation of traditional institutional ideologies and routines and the subsequent creation of new organizational forms that have facilitated the empowerment, representation, and participation of diverse syndicates of actors in a way that is insightful for linkages between institutions, entrepreneurship, and economic development. Specifically, it demonstrates how new organizational forms, as manifestations of both strategy and structure (Ingram, 1998) may provide actors with opportunities and resources to gain control over the economic development issues and challenges concerning them. These new organizational forms may represent the technical and institutional solutions to economic development challenges confronting local and regional economies. In addition, they bring a community orientation and collective action to the development agenda as well as facilitate critical linkages pertaining to perceived gaps in the demand side and supply side of entrepreneurship (Casson, 1995; Thornton, 1999).

Second, we show why and how institutional change in the economic development sector, has propelled the ascendancy of new actors, reconfigured the distribution of power among stakeholders, and redefined boundaries of the sector. Specifically, it accounts for why and how state economic development programs are increasingly and aggressively targeting and soliciting academic and research institutions as agents of research commercialization and technology transfer. In response, many academic and research institutions have revamped their traditional missions by including economic development in their goals and exploiting the benefits of the “knowledge economy” (Drucker, 1969; Romer, 1990; Powell & Snellman, 2005).

Finally, economic development in general, and business incubation programs in particular, require multidimensional resources and technologies (Lewis 2001) embedded in diverse organizations that span various technical and institutional environments (Scott, 1995).

Consequently, neither vertically organized hierarchies nor horizontally constituted markets that regulate the supply and demand of resources (Powell, 1990; Williamson, 1991) may represent the most effective modes of governance. Rather, entrepreneurship thrives on networks (Aldrich, 1989; Aldrich & Waldinger, 1990; Ruef, Aldrich, & Carter, 2003; Uzzi, 1997, 1999), therefore, it has become imperative for economic development policy makers and practitioners to map regional resources (including but not limited human, intellectual, social, physical, etc.), and create and sustain networks by brokering productive collaborative partnerships among them in order to catalyze and capitalize the economic development agenda at the grassroots.

The paper is structured into four main sections. In the first section I present a brief institutional history of local and regional economic development in the United States designed to contextualize the dominant activities that guided development policy and practice. The second section briefly discusses the three interrelated constructs—empowerment, representation, participation—that constitute our conceptual framework. This is followed by analyses of the causes that propelled the creation and implementation of business incubators and collectively contributed to the wave of the democratization in the sector. The final section discusses the consequences of the democratization in terms of their implications for policy and managerial decision making.

The Evolution of Economic Development in the U.S.

Economic development refers to the processes utilized by nations and regions to advance their economies through job creation and income generation, often accomplished by enhancing the factors of production including land, labor, capital, and technology (Krumholz, 1991).

Economic development has been differentiated from economic growth because emphasis is placed on the qualitative changes in what and how goods and services are produced through shifts in resource use, production methods, workforce skills, technology, information, or financial arrangements (Kane and Sand, 1988). While economic development may be constituted by different programs and activities such as inner city redevelopment, business recruitment, retention, and expansion, housing and real estate developments, community outreach and initiatives, job creation and income generation, among others, the ultimate objective of economic development is to improve the standard of living, accumulate assets, and create wealth (Oliver and Shapiro, 1995; Sherraden, 1991).

Until recently, economic development policy in the United States was predominantly authoritarian. Under this regime, governments deployed their rational legal authority and unilaterally designed customized packages of incentives and subsidies that were targeted to and used to lure or entice LIEs to relocate to certain regions of the country (especially in the South) [Benson & Steinbacher, 1997]. Ironically, these practices—location incentives—were institutionalized by the federal government in the 1930s and were predicated on the need to use economic development as a tool to alleviate rural poverty in the South. Thus, in 1937, the federal government issued Industrial Development Bonds (IDBs) to facilitate business recruitment in the South. By providing cheap capital and below market interest rates to support their acquisition of productive resources—land, building, and capital, the federal government pioneered and “mandated” this practice whereby LIEs are enticed with financial incentives and encouraged to relocate elsewhere and generate significant competitive benefits—a technique often dubbed “smokestack chasing” (Benson & Steinbacher, 1997; Daneke, 1985). From this standpoint, economic development strategies consisted primarily of the recruitment and retention of LIEs and the dominant economic weapon used were customized packages of financial

incentives and subsidies including tax breaks, low interest rates, and cheap productive assets, among others.

The economic logic for these practices were rooted in the ideology that LIEs were the dominant creators of jobs, income, and wealth in the nation's economy, therefore, a significant amount of taxpayers' dollars should be allocated to support their productive efforts. Many have criticized these practices because their focus of attention on LIEs to the exclusion of small and medium enterprises (SMEs) and entrepreneurial firms was discriminatory because they favored LIEs but disenfranchised SMEs and entrepreneurial firms. Perhaps, even more important, they institutionalized unproductive competition among states, and legitimized and intensified the race to recruit LIEs resulting in ambitious packages of incentives and subsidies funded with taxpayers' dollars, and competitive strategies aimed at outmaneuvering and outbidding each other for LIEs.

Goss and Phillips (1999:217) called this "the economic war between the states" while others labeled it "the second war between the states" (Toft, 1996). Still others called it "corporate welfare" (Quittner, 1997) because of the massive financial giveaways to LIEs. Nevertheless, many have expressed their grave concerns about "the economic war between the states". Regulators such as the Federal Reserve Board strongly disapproved this practice and published a paper, entitled "Congress should end economic war among the states" (Burstein & Rolnick, 1995). Besides regulators, many Midwestern economists demanded an end to this practice that privileges LIEs but disenfranchises SMEs and entrepreneurial firms. These economists recommended the formulation of a comprehensive policy based on statewide tax relief for all citizens and businesses (Toft, 1996). Some commentators and analysts (Farrell, 1996; Toft, 1996) see "economic wars between the states" as a 'zero sum game' because nobody wins. Rather, it escalates the price of subsidies and increase the cost of programs to tax payers.

For instance, Schweke, Rist, and Dabson (1994) documented that while in 1980 Tennessee paid \$11,000 for every job created at the Nissan plant, just a couple of years later, to win the Saturn plant in 1985, the state had to pay \$26,000 for every single job. More recently, South Carolina paid \$71,000 per job for the BMW plant in Spartanburg, while neighboring Alabama invested \$169,000 per job to win Mercedes plant. Moreover, the promise to create future new jobs is inherently risky and clouded in uncertainty because LIEs do not always meet their projected goals and expectations. For example, Toft (1996) documented how in 1978, Pennsylvania lured Volkswagen with a \$70 million incentive package to establish a plant with the assurance of creating 20,000 jobs. However, the factory only employed about 6,000 workers and terminated operations within a decade as Volkswagen restructured its operations. Many other, less visible incentives packages to LIEs cost states millions of taxpayers' dollars but generate less jobs and income than projected. Moreover, businesses capitalize on "economic wars between states" by demanding more and playing states against each other. It is estimated that the average annual cost per job from incentive programs of about \$4,000 represents a formidable threshold for many states to surmount in order to generate a positive return on their investment (Bartik, 1994). Furthermore, opponents have argues that even if states don't overpay, the nation as a whole loses because a "beggar-thy-neighbor" competition does not generate net new jobs, rather, it relocates jobs from one state to another, incurring high switching costs in the process (Farrell, 1996; Tendler 2000). In sum, opponents criticize the multimillion dollar investments in LIEs with taxpayers' dollars by arguing that bidding wars increase the cost of incentives and are detrimental to states because the winner typically overpays to win. The so-called "winners curse" has been coined to describe the situation in a hiighly contested auction

with extremely keen and interested bidders where the winner is often a loser because competing bidders “inflate” the price.

Nevertheless, the “economic wars” between states have generated an intensive ideological debate between advocates and opponents on the question of whether these financial deals are beneficial to the states that support them and the taxpayers who actually pay for them. The empirical evidence is inconclusive at best. Advocates including some prominent economists (Sachs, cited in Tandler 2000) claim that recruitment subsidies are viable economic development tools in an age of global business integration and argued that if anything nations should offer more rather than less. Sachs, for instance, cites Costa Rica’s successful recruitment of Intel as an example that is economically beneficial to both parties. Affonso (1997:18) and Montero (2000) argued that critics typically exaggerate tax incomes forgone, and declare that some state governments, such as Brazil, have been spurred by these losses to increase tax revenues in other ways by introducing significant fiscal reforms. Koropecjy’s (1996) study suggested that incentive programs may have a positive, albeit small, job impact in manufacturing and found that an additional incentive program increased the relative growth in manufacturing employment by 0.4 percent in ten years. Using average per worker spending targeted to LIEs between 1990 and 1995—she found that an additional dollar in spending per worker on economic development programs will increase relative manufacturing growth by 0.4 percent. Similarly, Spiegel and Bartolome (1996) found a positive relationship between state spending on development per worker and state manufacturing employment growth between 1990 and 1993. Generally, the finding was that states that spent more created more jobs in manufacturing than those that didn’t. Thus, if a state development agency increased its annual expenditure per worker by \$10 over the current mean of \$10.67, then manufacturing jobs in that locality would increase by more than 1 percent per year.

“Economic wars” prevailed and persisted in the decades of the 1970s and beyond as state governments demonstrated their interest in LIEs and preference for strategies that facilitated their recruitment and retention rather than nurturing entrepreneurial forms. The genesis of the decline in “economic wars” may have been triggered by David Birch’s (1978) influential study about the “job generation process” that found that small firms, collectively, created more new jobs (Benson and Steinbacher 1997, p. 161). More specifically, he found that 81.5 per cent of all net new jobs created in the US between 1969 and 1976 were located in small firms with fewer than 100 employees. In Birch’s own words, the study showed that “Small firms, despite their difficulties in obtaining capital and their inherently higher death rates are still, on balance, the major generators of new jobs in our economy and, in slower growing areas, the only significant provider. Any economic development policy aimed at stimulating job growth must come to grips with this reality. It is not the relatively few large corporations, about which we hear so much in the press, that are bringing stability to older areas. It is the thousands of anonymous smaller firms that are carrying the burden in the older sections of our country - and the lion’s share in the growing areas as well.”

Not surprisingly, the economic establishment was skeptical about Birch’s findings because the notion that small firms created more jobs than large businesses contradicted prevailing economic theories and seemed counterintuitive. Needless to say, Harrison (1999) and Shahidi (1998) have emphasized the implications Birch’s conclusions had on economic development policy and agenda because it precipitated the initial small business job creation hypothesis (Kirchoff and Greene 1995), and shaped the ideological evolution of interest in and attention to entrepreneurial firms, and resulted in the formulation of new policies that reflected a

renewed and heightened interest in the role and contribution of small firms with the design and implementation of programs aimed at providing technical and business assistance to support the growth and development of small firms (Eisenger, 1988; Osborn, 1988; Harrison, 1999).

Policy makers envisioned that entrepreneurial firms will play a dominant role in economic growth and development because new firms create new jobs, facilitate upward social mobility, promote economic adaptation, intensify competition, and increase economic efficiency (Piore and Sable, 1984; Birch 1987; Brown, Hamilton & Medoff 1990).

While on the one hand, policy makers envisaged that the aggregate contributions of entrepreneurial firms would be critical to local and regional economies, on the other hand, they were also informed and guided by the empirical evidence that many new and small firms failed within a short time (Stinchcombe, 1965; Freeman, Carroll, and Hannan, 1983; Aldrich and Auster, 1986) due to the lack of critical resources. Hence, it was hypothesized that the allocation of resources through various incentive programs would facilitate the recruitment and retention of entrepreneurial firms, stimulate new business formation, promote private investment, and generate job creation and at the same time reduce the risks and costs associated with founding, managing, and operating new businesses. The ideological and intellectual justification was based on theoretical propositions that innovation promotes economic growth has contributed the creation and proliferation of business incubators as a strategy and objective of economic development (DiGiovanna and Lewis 1998; Shahidi 1998; Smilor and Gill 1986; Tornatzky et al. 1996). Under this premise business incubators would facilitate entrepreneurship and the innovation process by connecting the development of new technologies with market demands and at the same time enable access to capital and other resources, especially during the formative years when early stage firms are most vulnerable and too risky for most investors (Tornatzky et al., 1996; Smilor & Gill 1986). As state governments sought to transition their economic development policies toward entrepreneurial strategies based on the fundamental objective that local innovation and new business formation will engender endogenous growth (Eisinger 1988; Massey et al. 1992; Atkinson 1991), the appeal and centrality of technopoles in state economic development strategy was obvious. According to Coburn and Berglund (1995) by 1995 all of the 50 states had or were in the process of implementing technology development programs, in sharp contrast to only a few state initiatives in the 1970s. Business incubators played a key role in the diffusion of these ideas and practices because policymakers saw them as representing organizational solutions to emerging economic development challenges.

As a result, governments shifted their focus from the recruitment and retention of LIEs to the development of entrepreneurial programs targeted to small, medium, and early stage firms in inner cities. Development shifted from emphases on job creation to wealth creation under the premise that the creation of wealth would generate employment opportunities. Consequently, business incubators were embraced and adopted as a strategy and objective of economic development with the rationale that the allocation of incentives and subsidized resources—shared space, equipment and services—through business incubation programs—will reduce the costs and risks associated with starting, operating, and managing a new business, and improving their survival at a time when they are most vulnerable to failures.

Causes of the Democratization of Economic Development

Several events coalesced to trigger institutional change in the economic development sector. These events, labeled exogenous “jolts” (Meyer, 1982) assume many forms and facets including social disruptions, technological discontinuities, competitive demands, and regulatory change,

(e.g., Davis, Diekmann, & Tinsley, 1994; Fox-Wolfgramm, Boal, & Hunt, 1998; Garud, Jain, & Kumaraswamy, 2002; Kraatz & Moore, 2002; Lounsbury, 2002; Ruef & Scott, 1998; Zucker, 1988). They create opportunities that facilitate the entry of new actors into an organizational field (Thornton, 2002; Thornton & Ocasio, 1999), bolster the presence, visibility, and power of existing actors (Scott, Reuf, Mendel, & Caronna, 2000), and destabilize the status quo. The result is that alternative paradigms are explored that may alter existing ideological foundations (Davis et al., 1994) and introduce new and emerging alternative logics in a way that frames the possibility for change.

Specifically, several factors coalesced to propel the democratization of economic development including economic restructuring (plant closures, corporate downsizing, business relocation, business exits, outsourcing, etc.); deregulation (legislative enactments, new standards, and new forms of compliance, etc.); scientific advancement and technological innovation (the rise and emergence of the Internet and major scientific advances in biotechnology, etc.) and social/cultural trends (the emergence and proliferation of entrepreneurship, venture capital, etc.). Together, these events first, led to the delegitimation of traditional institutional ideologies that informed and guided approaches and strategies deployed to promote economic development, and second, the creation and diffusion of new organizational forms and new governance mechanisms or forms of compliance. These new and emerging economic development policy and agenda were reflected several legislative initiatives, allocation of resources, and creation of new statewide agencies that were mandated to promote entrepreneurship and new business formation via scientific advancement and technological innovation. These emerging economic development approaches and strategies was “a fundamental departure from previous routines that advanced modern industrial capitalism with the traditional emphases on the recruitment and retention of LIEs. By formalizing government interest in entrepreneurial firms, a new chapter was opened in economic development policymaking and practice where emerging approaches and strategies actually created opportunities for individuals, groups, and organizations to assume and share the collective authority, responsibility, and accountability for catalyzing and capitalizing economic development through the development and commercialization of new products, new technologies, and new business models, etc., and in so doing also stimulate job creation, generate fiscal income, and accumulate wealth for themselves, their organizations, and communities. The next section provides details of these exogenous factors or “jolts” that preceded and facilitated the democratization of economic development.

Economic Restructuring

Beginning in the 1970s but becoming more prevalent and persistent in the 1980s and 1990s, economic restructuring typified by rampant plant closures, corporate downsizing, business relocation, business exits, business terminations, business failures, and bankruptcies, etc. (Lewis 2001) created a massive economic crises that led to the erosion of thousands of jobs and generated significant political and constituent pressure for social and economic reform. For example, in the first 5 years of the 1990s, 3.1 million U.S. workers lost their jobs through redundancy and reorganization, and by the mid 1990s over 43 million jobs had been terminated and/or outsourced—in the United States since 1979 (Uchitelle & Kleinfield, 1996). In 1991, the American Management Association (AMA) surveyed 1,142 organizations that had downsized (Academy of Management Survey, 1991) and the 1995 follow-up study projected "a continuation, if not an acceleration of many of these trends" (Mroczkowski & Hanaoka, 1997, p. 58). Among the U.S. firms surveyed, 29% projected additional reductions in their workforce, the

highest number since the surveys began in 1987. By 1997, 61% of U.S. organizations had downsized at least once during the 1990s (Condodina, 1997) and 70% expected the trend to persist (Mirvis, 1997).

In contrast to corporate downsizing, entrepreneurship was booming. Kuratko (2005) reported that new business incorporations had typically averaged 600,000 per year while the 807,000 new small firms established in 1995 was an all-time record. In addition, since 1980, Fortune 500 firms lost over 5 million jobs even as over 34 million new jobs were generated. In 1996, small businesses created 1.6 million new jobs while fifteen percent of the fastest-growing new firms (i.e., “gazelles”) accounted for 94% of the net job creation, and less than one third of these gazelles were involved in high technology. Small businesses (i.e., those with fewer than 500 employees) employ 53% of the private work force and account for 47% of sales and 51% of private sector gross domestic product (GDP). Sixteen percent of all U.S. firms have been in existence for less than 1 year. Sixty-seven percent of all new inventions are created by smaller firms (Reynolds, Hay, & Camp, 1999).

Many recognized that the structure of the U.S. economy had fundamentally changed since the 1980s from an “industrial” to an “information economy” (Acs, 1999) could not be overemphasized. Not surprisingly, several labels were coined by analysts and commentators to depict this transformation including “knowledge economy” (Drucker, 1969; Romer, 1990; Powell & Snellman, 2005), “entrepreneurial economy” (Drucker, 1985), “new economy” (Kuttner 1999; Atkinson 2001), “network economy” (Kelly 1997), and “digital economy” (Tapscott 1995), etc. As a result of these developments, governments passed a number of legislations to diversify local and regional economies by dramatically shifting the traditional dependency on LIEs as the dominant players in economic development policy and agenda, creating and diffusing new organizational forms, and advancing new governance mechanisms in the economic development sector. These legislative initiatives are discussed in the next section.

Political-Legal Deregulation

The formalization of government interest in small businesses and entrepreneurial firms evolved over several decades through a number of legislations that collectively and cumulatively reinforced the trend towards the democratization of economic development. ole
Firsdevelopments in the 1970s combined to reinforce the formalization of government interest in entrepreneurial firms and small businesses. First, in 1976, Congress enacted Public Law 94-305 to establish the Office of Advocacy within the United States Small Business Administration (SBA) (Grover 1999) with a mandate to, among other things:

Examine the role of small business in American economy and the contribution which small business can make in improving competition, encouraging economic and social mobility for all citizens, restraining inflation, spurring production, expanding employment opportunities, increasing productivity, promoting exports, stimulating innovation and entrepreneurship, and providing an avenue through which new and untested products and services can be brought to the marketplace.

Notice the specific interest of the government in “innovation” and “entrepreneurship” as described in the preamble to this legislation. Similarly, in 1978, the passage of the Revenue Act reduced the capital gains tax rates and increased returns accrued to investors involved in risky ventures. That same year, the Employment Retirement Income Security (ERISA) Act of 1978

deregulated pension funds and permitted small percentages of total asset funds to be invested in venture capital funds. The outcome of these legislations was the release and availability of large amounts of investment capital to fund new and highly risky ventures and many have recognized the centrality of these events because it laid the foundation and the later dramatic growth of the venture capital industry (Edmunds 2001).

In 1980, the United States Senate enacted the Bay-Dole Act (P.L. 96-517, Patent and Trademark Act Amendments of 1980) to consolidate and standardize “patent policy among many federal agencies that fund research, enabling small businesses and non-profit organizations, including universities, to retain title to inventions made under federally-funded research programs” (AUTM 2002). The federal government’s motivation was summarized in the introductory remarks of the legislation:

It is the policy and objective of the Congress to use the patent system to promote the utilization of inventions, arising from federally supported research or development; to encourage maximum participation of small business firms in federally supported research and development efforts; to promote collaboration between commercial concerns and nonprofit organizations, including universities; to ensure that inventions made by nonprofit organizations and small business firms are used in a manner to promote free competition and enterprise; to promote the commercialization and public availability of inventions made in the United States by United States industry and labor; to ensure that the Government obtains sufficient rights in federally supported inventions to meet the needs of the Government and protect the public against nonuse or unreasonable use of inventions; and to minimize the costs of administering policies in this area.”

[(35 U.S.C. 200) Introductory Remarks, P.L. 96-517, Patent and Trademark Act Amendments of 1980].

The Bayh-Dole Act revolutionized federally funded research and development activities by eliminating major bureaucratic and legal barriers that hitherto prohibited academic and research institutions from electing to retain ownership of intellectual property they produced but funded with taxpayer’s dollars. The Bayh-Dole Act has been hailed by the *Economist* (Dec. 12, 2002 edition), in an article entitled “*Innovation's Golden Goose*” as—

"Perhaps the most inspired piece of legislation to be enacted in America over the past half-century. Together with amendments in 1984 and augmentation in 1986, this unlocked all the inventions and discoveries that had been made in laboratories throughout the United States with the help of taxpayers' money. More than anything, this single policy measure helped to reverse America's precipitous slide into industrial irrelevance."

In 1982, Congress established the Small Business Innovation Research (SBIR) program under the Small Business Innovation Development Act of 1982 (P.L. 97-219) and mandated federal agencies with over \$100 million to earmark 2.5% of their extramural budgets to administer SBIR programs for small businesses in pursuit of promising research and research and development (R/R&D) activities with the potential for commercialization. This initial SBIR Act of 1982 was reauthorized until September 30, 2000 by the Small Business Research and Development Enhancement Act (P.L. 102-564), and reauthorized again until September 30, 2008 by the Small Business Reauthorization Act of 2000 (P.L. 106-554).

These legislations and subsequent reauthorizations created a community of federal agencies that funded and administered R/R&D programs to facilitate innovations with considerable market potential by small firms and for the public benefit. To date, eleven federal agencies including the Departments of Health and Human Services (DHHS), Agriculture (USDA), Commerce (DOC), Defense (DOD), Education (DoED), Energy (DOE), Homeland Security (DHS), and Transportation (DOT); the Environmental Protection Agency (EPA), the

National Aeronautics and Space Administration (NASA), and the National Science Foundation (NSF) agencies participate in the SBIR program, and over \$12 billion has been awarded to many small firms through the SBIR program.

A decade after the SBIR Act, Congress enacted the Small Business Technology Transfer (STTR) Act of 1992 (Public Law 102-564, Title II) to establish the STTR program. Like others, this legislation was reauthorized until the year 2001 by the Small Business Reauthorization Act of 1997 (P.L. 105-135), and reauthorized again until September 30, 2009, by the Small Business Technology Transfer Program Reauthorization Act of 2001 (P.L. 107-50). Relatively, more audacious and ambitious the SSTR programs mandated federal agencies with extramural R&D budgets over \$1 billion to administer programs by allocating 0.30% of their budgets to support the effort. Again, currently, five federal agencies including the DOD, DOE, DHHS (NIH), NASA and NSF participate in the STTR program.

Overall, congressional rationales for establishing SBIR and STTR Programs have been predicated on the need to heighten the role of small firms in accelerating the pace of technological innovation and elevating the role of the private sector in the commercialization of innovations developed through SBIR R&D. They have increased the involvement of small business in federal R/R&D as well as broadened the representation and participation of socially and economically disadvantaged small firms including women-owned businesses in the SBIR program. In addition, by seeking to increase the representation and participation of small firms in STTR and SBIR programs, and elevating private sector commercialization of technology developed through Federal R&D, these federal legislations were not only political, but also strategic and ideological because it reversed decades old trends by signaling the dawn of a new economic regime in which the small firm would play a significant and compelling if not a dominant role.

Besides legislative enactments, the federal government also played the role of a political activist by “peddling” an economic ideology that advocated the creation and implementation of business incubation programs. In 1984, the Office of Private Initiatives of the U.S. Small Business Administration (SBA) convened a national conference in Chicago that was attended by over 500 participants including economic development practitioners and SBA representatives from across the nation. At the meeting, the SBA disseminated information through publications about the availability of resources to support business incubation programs throughout the country (USSBA 1986). In the three years following this inaugural conference, the SBA aggressively conducted massive marketing and public relations campaigns to advance the business incubation ideology, promote awareness, and generate interest in business incubation programs (Hughes 2000).

Together these state legislations rapidly diffused through institutional networks at county and municipal levels, and propelled the rapid and widespread adoption of business incubators, Table 6 is a collection of excerpted interviews about the rationales and motivations for the creation and implementation of business incubators by regional and local governments. Both federal and state legislations were catalyzed and capitalized academic entrepreneurship and patenting via research commercialization and technology transfer practices. By the late 1990s, technology transfer had become normalized as technology transfer offices (TTOs) on U.S. campuses dramatically increased from only 20s in 198 to over 200 by the year 2000 (Mowery et al, 2004). Similarly, between 1980 and 2000, the number of patents awarded to research universities grew 850% (Owen-Smith, 2003) with a disproportionate amount assigned to the biomedical field (Ganz-Brown, 1999; National Science Board, 2000).

Social/Cultural Trends

Institutional change creates opportunities as well as threats. Thus, while economic restructuring prevailed and persisted across the nation, in contrast, entrepreneurship and new business formation was accelerating in pace and intensity. Gartner and Shane (1995) documented the unprecedented occurrence of entrepreneurship at significantly higher rates than the preceding 100 years. Reynolds and White (1997:7), in a survey, found that entrepreneurship is a meaningful lifestyle and career identity for many, with 4% of all adults, 1 in 25, trying to start a new firm at any given time. Others observed phenomenal growth in rates of entrepreneurship, characterized by a corresponding increase in the number of endowed chairs in business schools; positions in research institutions, foundations, professional organizations; and journals in the field of entrepreneurship (Katz 1991, Robinson & Haynes 1991, Sandberg & Gatewood 1991).

Kuratko (2005) estimated that new firms with employees may number over 600,000 in a given year, and that another couple of million new business entities—in the form of self-employment emerges each year. In the U.S. for every 300 adults, approximately one new firm with employees is established every year while a typical new firm has at least two owners—managers while one of every 150 adults is involved in the founding of a new firm each year. Substantially, more—1 in 12—are involved in trying to launch a new firm. The net result, then, is that the U.S. has a very robust level of firm creation. Among the 6 million establishments (single-site and multisite firms) with employees, approximately 600,000 to 800,000 are added each year. That translates into an annual birth rate of 14 to 16 per 100 existing establishments (Reynolds, Hay, & Camp, 1999).

As many as 5.6 million Americans below age 34 are actively trying to start their own businesses today. One third of new entrepreneurs is younger than age 30, more than 60% of 18- to 29-year-olds say they want to own their own businesses, and nearly 80% of would-be entrepreneurs in the U.S. are between the ages 18 and 34 (Tulgan, 1999). Exponential growth in the practice of entrepreneurship generated considerable growth in entrepreneurship education, and triggering tremendous expansion in curricula and programs geared towards entrepreneurship and new-venture creation. Katz (2003) found that the number of colleges and universities that offer courses related to entrepreneurship had grown from a handful in the 1970s to 1,600 and many observed that the U.S. had achieved its highest economic performance during the last 10 years by fostering and promoting entrepreneurial activity (Minniti & Bygrave, 2004). Not surprisingly, Reynolds and White (1997:7) documented that entrepreneurship is a meaningful lifestyle and career identity for many and estimated that 4% of all adults are trying to start a new firm at any given time.

Technological Innovation

Major scientific advancements in 1990s amplified the trend towards the democratization of economic development. Two sectors, the biomedical (Aragon and Landry 2000b, Economist 1999) and information and communication technologies were particularly significant. Both are knowledge-intensive domains that thrive on critical linkages with academic and research infrastructure as sources and drivers of entrepreneurship and innovation (Zhang & Davis 2001). In addition, both sectors require substantial investments of venture capital in spite of the fact that early stage biotech firms typically may need more investment capital and longer periods to develop and commercialize products and relatively longer time frames for new ventures to develop, mature, and become profitable (Zhang & Davis 2001). Originating in the 1979s with

the discovery of recombinant DNA by researchers at Stanford University, one indicator of the phenomenal growth of the sector may be reflected in its lion's share of academic patenting issued. For example, the number of patents issued to research universities grew over 850% between 1980 and 2000 and the biomedical technologies' sector received a disproportionate share (Ganz-Brown, 1999; National Science Board 2000).

Like the biotech sector, the growth and progressive performance of integrated circuits in the past few decades has propelled the growth of IT in both scale and scope, and has attracted overwhelming interest from governments and investors alike because of its property as an "enabling technology"—one that provides the scientific or industrial foundation for the emergence of other industries and capable of catalyzing the growth of entrepreneurial firms across multiple sectors. Despite the reality that both IT and biotech are inherently high risk sectors, the probability of 'harvesting' astronomical returns from successful commercialization of technologies and products reinforces their attractiveness to financial institutions, especially venture capital firms and business angels.

The remarkable advances in integrated circuits and microprocessors, the rise and revolutionary impact of the Internet (DiMaggio et al. 2001), was profound. It stimulated the flow of millions of investment capital, heightened the visibility of the IT sector, and generated an influx of stakeholders in the sector. Originating as a communication network within the scientific community in the 1960s and the military after 1975 (DiMaggio et al. 2001), the Internet did not materialize until 1982 when its spectacular growth and expansion was driven by the availability of graphical user interfaces and the interests of private investors (Abbate 1999, Castells 2001).

In 1994, the availability of the Internet in the public domain coincided with the introduction of the Mosaic web browser as well as the emergence of the World Wide Web. As a result, Internet access rapidly diffused (online) from 25 million in 1995 to 83 million in 1999 (Intelli-Quest 1999), the Internet generated an exponential increase in the amount of accessible information from less than 20,000 websites in 1995 (Prettejohn 1996) to over 10 million in 2000 (Netcraft 2000) with over two billion pages and an estimated two million pages that were added daily (Lake 2000).

On March 16, 1999, the US Commerce Department scrapped a 60-year-old standard industry classification system (SIC) because it was insignificant in an information-based economy (USA Today, March 17, 1999). Perhaps, even more important, computers were not even an industry category because they were classified with adding machines. The installation of a new system, the North American Industry Classification System (NAICS) was devised to better reflect new and emerging categories triggered by the information revolution. The NAICS was designed to share similarities with neighboring Mexico and Canada to capitalize on growing international trade among these nations (USA Today, March 17, 1999).

Following these developments, the US Commerce Department planned to publish figures depicting the impact of online shopping on retail activity as a central indicator of the nation's economic vibrancy. Until then, the Commerce Department had grouped online shopping figures with catalogue sales in its overall retail sales numbers. It was expected that the new figures that reveal Internet sales as a separate entity will be available by the middle of 2000 for 1998 and 1999 (Info World, February 15, 1999, p. 71).

The Democratization of Economic Development: Empowerment, Representation & Participation

The democratization of economic development has propelled the formation and diffusion of new governance mechanisms. It has opened the floodgates for individuals, organizations, and communities to be empowered to pursue many desirable social and economic outcomes that advance economic development. By empowerment I refer to the process whereby social actors—individuals, groups, and organizations—gain control over those issues that are of interest or concern to them (Rappaport, 1984, 1987). Empowerment theory has provided the intellectual and pragmatic justification for the implementation of various programs across diverse social and economic sectors including health and education. Empowerment theories have also provided the ideological and conceptual foundation for interventions among minority groups (Gutierrez, 1990), the youth (Gibson, 1993), and unions (Almeleh, Soifer, Gottlieb, & Gutierrez, 1993) grassroots organizing (Almeleh et al., 1993; Speer & Peterson, 2000) and national policy (Zippay, 1995).

Empowerment has also enabled various stakeholders, constituencies, and interest groups to be represented in the economic development arena. The concept of political representation, as developed by Pitkin (1967) depicts the activity of making citizens' voices, opinions, and perspectives “present” in the public policy making processes. From this standpoint, political representation occurs when political actors speak, advocate, symbolize, and act on the behalf of others—their constituencies—in the political arena. Simply put, political representation is akin to political assistance in which the representatives deploy their human, social, cultural, and economic “power” and apparatus to advocate the interests and concerns of their constituencies. Political analysts (Pennock & Chapman; 1968; Pitkin, 1967; Schwartz, 1988) have generated a number of concepts and claims about the nature and form of democratization with four (4) fundamental elements: First, the entity that is representing (the representative, the organization, the government, the union, sector, etc); Second, the entity that is being represented (the stakeholders, constituencies, and interest groups, etc); Third, something that is being represented (social, economic, and political interests, goals, outcomes, etc.); and finally, the context within which the representation occurs (the setting).

The democratization of economic development has enabled both the economic and noneconomic interests of various stakeholders, constituencies, and interest groups to be represented in the economic development arena. From this standpoint economic representation occurs when individual and collective actors deploy their human, physical, social, cultural capital to advance or advocate the economic interests and concerns on behalf of themselves and their constituencies. Besides empowerment, the democratization of economic development has fostered the participation or involvement of key stakeholders in the implementation of programs aimed at the development agenda. Participation, in turn, ensures that communities leverage all resources at their disposal and make informed decisions aimed at improving their economic well-being. It has been recognized that programs for the delivery of public goods and services are often more effective if the public participates in their planning and execution. Participation provides collective approaches and models for the community's vision for the future to be shared and enacted. Under participation, everyone is responsible and accountable for productive initiatives in their own area for the betterment of the community. Participation fosters creativity and innovation which emerge from the grassroots and diffuse through the community as many people cooperate and collaborate to catalyze and capitalize change in a way that has enduring significance for the local economy. In essence, participation has empowered diverse

organizational populations to take economic control of their future and enabled them to proactively engage in actions and behaviors pertaining to their financial security through the democratization of economic development.

Participation in the ownership, management, and operation of new businesses provide tremendous opportunities for participants to learn business principles and develop business skills and competencies in a way that has tremendous collective value and implications for regional and national business and/or industrial competitiveness. Besides their presence and visibility in local and regional environments, business incubators allow economic development practitioners to estimate of the type and amount of resources demanded by the community and help developers with planning. Over the last couple of decades, management practitioners have recommended decentralized systems of public administration to encourage local participation, which, in turn, is expected to improve government performance significantly, and indirectly to help stabilize the economic development system. Decentralization fosters local participation and is an alternative to relying on central bureaucracies and imperfect markets, and many governments are experimenting with various forms of decentralization with the hope that local group will explore ways of improving efficiency in the design and implementation of development projects.

Thomas Jefferson once said, “I know of no safe depository of the ultimate powers of society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it away from them, but to inform their discretion.”—Thomas Jefferson (1820). Thomas Jefferson alluded to power of citizen participation in any social endeavor and also anticipated the notion of distributed leadership, a concept that has become popular in recent years. Also labeled “distributed agency”, “distributed leadership is premised on the notion that every individual, group, and organization is important and capable of making significant contributions to the development agenda. Distributed leadership explores the most productive ways and means to leverage the expertise, ideas, and effort of the community through problem solving and decision making. As an attitude rather than a management technique, distributed leadership recognizes and is intent on mobilizing all members of a community—individuals, groups, and organizations—and deploying the collective assets of the community because they are indispensable sources of knowledge, experience, and wisdom. As a result, it has become imperative that communities create a nurturing environment where shared or collective purposes can be executed in the context of individual contributions and interdependence.

New organizational Forms

The democratization of economic development has been facilitated and propelled by the creation, diffusion, and standardization of new organizational forms which represents a form of institutional entrepreneurship (DiMaggio (1988). New organizational forms enable facilitate multiple approaches to societal and economic problems (Rao & Singh, 1999, 2001) and are demonstrative of power and privilege arrangements (Perrow, 2002). The emergence of a new organizational forms has profound implications for institutions and entrepreneurship (Ingram, 1998) even though new organizational forms may take decades to fully materialize Rao, 1998; Ruef & Scott, 1998) because they are typically constituted from the elements of existing forms and/or emerge through transitional arrangements, exacerbating variation between parents and offspring forms (Campbell, 1997). In the absence of a consensus on how they should be defined (Lewin, Long, & Carroll, 1999), new organizational forms have been defined in many ways and

conceptualized from a variety of perspectives. For example, Ingram defined an organizational form as “the combination of an organizational structure and an organizational strategy” (1996: 85) while Child and McGrath (2001:1135) defined them as “alternatives to conventional bureaucracy”. Others have defined organizational forms as “novel recombinations of core organizational features involving goals, authority relations (including organization structures and governance arrangements), technologies, and client markets” (Rao and Singh, 2001: 244). Still others, describe new organizational forms as “incarnations of beliefs and values” (Haveman & Rao, 1997: 1611).

The democratization of economic development has propelled a myriad of new and overlapping organizational forms including Business Incubators (BIs), Business Accelerators (BAs), Technology Transfer Offices (TTOs), Science Centers (SC), Small Business Development Centers (SBDCs), Social Enterprise Centers (SECs), Society for Corps of Retired Executives (SCOREs), Innovation Centers (ICs), Knowledge Centers (KCs), Research Centers (RCs), Small Business Innovation Centers (SBICs), Entrepreneurial Centers (ECs), Minority Business Development Centers (MBDCs), Research Parks (RPs), Science Parks (SPs), Technology Parks (TPs), Innovation Parks (IPs), Women Business Centers (WBCs), and Community Development Corporations (CDCs) etc.

New Jersey State Programs

In 1985, the New Jersey Commission on Science and Technology (NJCST) was inaugurated under state statute chapter 52:9X (sections 1-10) with the mandate to promote economic development and job creation via science and technological programs in competitive response to Pennsylvania’s actions. Like Pennsylvania, the development and expansion of business incubators featured prominently in state economic development strategies. At the 15th anniversary celebration in 2000, a document signed by both the Chairman and Executive Director of NJCST to the Governor and State Assembly highlighted the strategic role of business incubators in the regional economic development strategy:

“We have also prominently featured our plans to expand the number of ‘technology incubators’ serving the development needs of early-stage technology-based firms statewide, in both urban and suburban settings. We believe we will easily meet the challenge issued to us by the Governor and the Legislature”.

(Annual Report, State of New Jersey Commission on Science and Technology, 1999-2000)

Similarly, through the New Jersey Commission on Science and Technology (NJCST) many program initiatives were designed to facilitate technology economic development and job growth by accelerating the development and commercialization of innovations and enabling the collaborations between academic and research institutions and business/industry. The NJCST funds (1) New Jersey Technology Fellowship Programs (2) Technology Incubator Network (3) Edison Innovation R&D Fund (4) Edison Innovation Centers of Excellence Federal Matching Program (5) University Intellectual Property Program (6) Small Business Innovation Research Bridge Program (7) Incubator Seed Fund Grant Program and (8) Stem Cell Research Grant Program. Other initiatives include the SBIR/STTR Training and Assistance, Stem Cell Symposium, Incubator Feasibility, and the New Jersey Manufacturing Extension Program.

New York State Programs

At the regional level state governments also embarked upon new rule making and the creation of new governance mechanisms by passing several legislations, creating new state-wide agencies, and allocating resources to support various entrepreneurial or new venture creation programs. In 1981, New York restructured its New York State Science and Technology Foundation as a public authority (Akinson, 1988).

Prior to late 1990s, the New York State Research Foundation (NYSRF) had statutory authority for funding scientific and technology research by the state's academic and research institutions until 1999 when the New York State Assembly passed a major landmark legislation—the J2K (Jobs 2000) Act—to dissolve the erstwhile NYSRF, create the New York State Office of Science, Technology & Academic Research (NYSTAR), and formalize and restructure state government interest in technology-driven economic development via research commercialization and technology transfer:

“To assume full responsibility for several programs aimed at promoting the development of “high-technology academic research and economic development” including construction of several world-class, state-of-the-art research centers, the modernization of existing research centers and the rapid transfer of technologies from the research lab to the marketplace (nystar.ny.state.gov).

In New York, under the auspices of the state's economic development agency (Empire State Development) numerous Research Center Programs (RCPs) were established primarily at the state's academic and research institutions. These RCPs include:

(1) 6 Centers of Excellences designed to foster research and economic development. With \$250 million from the state and \$750 million pledged by the private sector, universities, and the federal government, a total of I billion has been earmarked

(2) 17 Gen*NY*sis (Generating Employment through the New York State Science) Centers are supported with a \$225 million and is aimed at maximizing research development potential of ongoing life sciences research; Funding designed to support construction of high-tech and biotech facilities

(3) 8 Strategically Targeted Academic Research Centers (STARs) are supported with \$75 million and designed to provide the physical and intellectual infrastructure necessary to achieve unprecedented breakthroughs in Science and Technology in the state by reinforcing and leveraging their global image as intellectual "powerhouses"

(4) 5 Advanced Research Centers (ARCs) were funded with \$10 million dollars facilitate the expansion of hi-tech research and economic growth and with the objective of leveraging the specialized competence of world-class scientific research in specific ways

(5) 15 Centers for Advanced Technology (CATs) Centers Programs capitalize of NY's outstanding institutional resources in research to create jobs and opportunities and with the objective of enabling collaboration among scientists and researchers in large and small business and industrial establishments to develop and commercialize new technologies

(6) 2 College Applied Research and Technology (CART) Center Programs facilitate enhanced collaboration between New York State industry and New York's colleges and with the objective of increasing technology-based research and economic development; promoting research collaboration and innovation with New York businesses; improving workforce development; better leverage State funding with investments from the Federal government, industry, foundations, and not-for-profit organizations with an economic development mission; and increase competitiveness of New York companies.

Pennsylvania State Programs

In 1983, the Pennsylvania State Assembly created the Ben Franklin Technology Partnership (BFTP) under Act 111 of 1984 (P.L. 555) as part of the then Governor Dick Thornburgh's regional strategy to stabilize the region after large scale economic restructuring devastated the state's manufacturing industries. BFTP was mandated to "provide funds through loans to establish small business incubator facilities."

The small business incubator program is designed to assist the formation of facilities where new start-up businesses can begin and grow. Encouraging the formation of new firms is a high priority of Pennsylvania's economic development strategy because these firms generate new job opportunities and often incorporate advanced technology into new or improved products, accelerating the transition to a more diversified economic base. The small business incubators facility will offer low cost space and business development services to a number of tenant firms housed in the incubator building.

(Pennsylvania Economic Revitalization Fund. Procedures for the Application and Distribution of Funds, Small Business Incubator Loan Program. 1984).

Like her regional neighbors, the commonwealth of Pennsylvania, under the auspices of the Ben Franklin Technology Partners (BFTP), funded and supported the establishment of Centers of Excellence (CoEs), that leverage their core competency in specific technologies and conducts both basic and applied research and development with the objective of developing and commercializing innovative concepts throughout the state. Located at academic and research institutions across the state these CoEs were designed to leverage the human capital of these institutions to catalyze technology-transfer opportunities, research and development, and faculty consulting. These include a (1) Center for Food Innovation (CFI) (2) Center of Excellence in Dielectric Studies (3) Radio Frequency Identification (RFID) Center of Excellence (4) Center of Excellence in Piezoelectric Materials and Devices (5) Center of Excellence for Signal Integrity Applications and Technology Transfer (6) Structural Health Monitoring Center of Excellence (7) Networking and Security Research Center of Excellence (8) Center of Excellence in Nanoscale Lignocellulosic Materials (8) Center for Nanoparticulate Science & Engineering (9) Center for Manufacturing Enterprise Integration.

In addition to the Centers of Excellence at academic and research institutions, BFTP also pursues investment strategies aimed at providing business and technical assistance to entrepreneurial firms so they can commercialize new products, boost sales, and attract private investment. In pursuit of these strategies BFTP typically invests \$50,000 to \$150,000 per year for a maximum of three years with a maximum of \$450,000. Payment for beneficiaries consists of a ten-year amortized loan at a rate of prime plus 2% with BFTP reserving the right to convert unpaid principal to equity. Recipients do not begin to pay back until investment is completed and interest does not accrue in the course of funding. Please see Table XXXX for program highlights.

Discussion & Conclusion

This paper has documented the democratization of economic development by demonstrating its ideological, strategic, and pragmatic ramifications in terms of a marked shift in policy and practice as well as a transition from authoritarian to participatory structures. These developments have enabled traditional players such as governments and business/industry to share the economic development task with new and emerging actors as academic and research institutions, and financial institutions, among others.

The creation, diffusion, and standardization of new organizational forms have provided significant opportunities for entrepreneurs, startups, and small firms to gain access to resources through various programs that facilitate the recruitment and retention of entrepreneurial firms. In so doing many entrepreneurs and entrepreneurial firms have been empowered to pursue their business interests and inclinations and in so doing participate in their own economic security and financial future. By providing incentives and subsidized resources—shared space, equipment and services—through business incubation and other programs, these new organizational forms reduce the costs and risks associated with starting, operating, and managing/owning a new business. The reduction of costs and minimization of risks means new firms have improved chances of survival, growth, and retention. Moreover, business incubators, like many of the organizational forms mentioned earlier provide participatory structures that facilitate the mass collaboration of actors—economic development practitioners, entrepreneurial firms, investors, and technical and business resource providers.

Prior to emergence and proliferation of business incubators, traditional approaches and practices alienated many community stakeholders, constituencies, and interest groups by excluding their direct participation in economic development policy making and agenda. It is encouraging, therefore, that recent models enable various actors to assume collective responsibility for determining the economic development priorities of their communities in pursuit of the collective efforts to catalyze and capitalize desirable social and economic outcomes.

Our account of the democratization of economic development with the constructs of empowerment, representation, and participation has enabled the mass collaboration of individuals, groups, and organizations in diverse alliances and multiple cooperative and collaborative arrangements that facilitate the pooling of resources and the shared delivery of critical programs. These partnerships have required the execution of a variety of roles and routines by various stakeholders, constituencies, and interest groups.

For example, governments (federal, state, county, and municipal, etc) enacted several legislations, created new statewide organizations, and allocated resources to diversity their national and regional economies, gain control of their economic environments, and minimize the costs and risks associated with starting, managing, and operating new businesses. By deploying their rational legal authority and executing multiple roles as regulator, advocate, broker, and investor/financiers, governments have been the dominant actor in the economic development domain. As a regulator, several legislative initiatives deregulated the ownership of intellectual property funded by the federal government but conducted by academic and research institutions. Since then, university entrepreneurship has increased dramatically through the formation of technology transfer offices (TTOs) that facilitate the production and protection of intellectual property. As a result, many academic and research institutions have diversified their traditional roles from inventors/producers or developers and innovators of new knowledge to dominant routines in the patenting and licensing of technologies. Moreover, through spin-offs, universities are increasingly becoming developers of new businesses and formidable competitors to traditional sources including business/industry, and venture capitalists. Similarly, with the growing prominence of science and technology as the strategy, objective, and driver of economic development, venture capitalists have also become major players in the economic development arena as drivers of new firms and investors in inherently risky technologies. Moreover, unescalated ties have eased the passage of spurby and developers of scientific new

Business and industry secured control of their economic future by investing in small but fledgling innovative firms as a strategy and objective of gaining access to new and emerging technologies. Academic and research institutions established technology transfer/research commercialization offices to regulate the production and protection of intellectual property, intensify patenting and licensing of technologies, and spinoffs, etc. and catalyze and capitalize on the benefits of a knowledge economy; Business and industry Professional, industry, and trade associations mobilized resources, aggregated interests, and created a collective identity to professionalize the field, to gain and enhance their legitimacy and promote industrial competitiveness; think-tanks established intellectual platforms to disseminate knowledge to institutional hierarchies on the merits of entrepreneurship to the local and regional economies; religious institutions, foundations, philanthropists, and ethnic collectivities allied with governments and business/industry to pool resources and deliver programs to stimulate economic independence, self employment and business ownership in pursuit of social and economic reform.

Individual, Organizational, and Societal Implications

The democratization of economic development with emphasis on scientific advancement and technological innovation has generated a renewed interest in the technical knowledge and expertise of scientists and engineers, especially those with advanced degrees working in fields with considerable applications development and commercialization potential. The allocation of resources to facilitate the recruitment and retention of “star scientists” (Zucker and Darby, 1996, 2001) and emergence and development of “Faculty Development” programs by New York and New Jersey underscore these emerging competitive challenges. New Jersey’s Technology Fellowship program, for example, provides doctoral graduates with salaries and opportunities to gain entrepreneurial experience and create “high quality” “high tech” jobs.

Many academic and research institutions have revamped their traditional missions by including economic development in their institutional goals and with the support of state governments are establishing many programs, activities, and events to leverage the rewards of the “knowledge economy” (Drucker, 1969; Romer, 1990; Powell & Snellman, 2005). Some analysts have observed that these developments require many academic and research institutions to re-evaluate their organizational structures and routines because the demand for academic patenting, licensing, and spin-offs require universities to increasingly develop business venturing and commercialization skills on the part of both administrators and academics (Siegel and Phan, 2005). Others have noted that spinning-off firms is more demanding than licensing (Franklin et al., 2001) and university management systems, developed to manage academic integrity, may not be suitable for commercialization and prudent decision making (Wright et al., 2007).

The proliferation of entrepreneurship at academic and research institutions have significant societal implications. Some have argued that the shift from closed innovation system to an open innovation system (Chesbrough 2003) coupled with a traditional “culture of open science” at universities (Nelson, 2001; Sampat, 2006) may adversely affect the propensity of university commercialization. Several years ago, Link, Siegel and colleagues (2003; 2004) found that many faculty members are not disclosing their inventions to their university. More recently, Markman et al. (2006a,b) have documented that many technologies are indeed “going out the back door.” While formal technology transfer mechanisms represent identifiable channels that facilitate or directly result in, a legal instrument such as a patent, license or royalty agreement, in contrast, informal technology transfer mechanisms enable the dissemination of

technological knowledge through informal communication processes. Thus, the democratization of economic development, while enabling the mass empowerment, representation, and participation or collaboration of actors through collective action may be compromised or subverted by the deregulatory processes and outcomes it was designed to facilitate.

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New York State Economic Development Initiatives:

Research Program	Objective	Budget:	Locations
6 Centers of Excellences (CoEs)	Foster research and economic development.	\$1billion total: \$250 million from NY state and \$750 million pledge from private, federal government and universities	Buffalo; Syracuse, Albany, Greater Rochester, Binghamton, Stony Brook.
17 Gen*NY*sis (Generating Employment through the New York State Science)	Maximizing research development potential of ongoing life sciences research by Funding the construction of high-tech and biotech facilities	\$ 225 million	Albany Medical Center; Alfred University; Binghamton University; Broad Hollow Science Park; Clarkson University; Cold Spring Harbor; Cornell University; CUNY College of Staten Island; Hofstra University; Niagara University Rensselaer Polytechnic; SUNY Upstate; Trudeau Institute; University at Albany Foundation; University of Rochester; Yeshiva University
8 Strategically Targeted Academic Research Centers (STARs)	Provide the physical and intellectual infrastructure necessary to achieve unprecedented breakthroughs in Science and Technology in the state by reinforcing and leveraging their global image as intellectual "powerhouses"	\$75 million	City University of New York; Columbia University; Cornell University; Rochester Institute of Technology; SUNY Buffalo; SUNY Stony Brook; Syracuse University; Rensselaer Polytechnic
Advanced Research Centers (ARCs) ways	Facilitate the expansion of hi-tech research and economic growth by leveraging the specialized competence of world-class scientific research in specific	\$ 10 million	Albany Medical College; Alfred University; Cornell University; Mount Sinai School of Medicine; Manhattan College
15 Centers for Advanced Technology (CATs) Centers Programs	Capitalize of NY's outstanding institutional resources in research to create jobs through collaborative opportunities, among scientists and researchers in large and small firms and industrial establishments to develop and commercialize new technologies		Alfred University; City University of New York; Clarkstown University; Columbia University; Cornell University; Rensselaer Polytechnic (2); Polytechnic University; SUNY Stony Brook (2); Binghamton University; Syracuse University; SUNY Albany; SUNY Buffalo; University At Rochester
2 College Applied Research and Technology	The CART Program is designed to stimulate technology-based research and economic development in New York; promote research collaboration and innovation with New York businesses; promote workforce	1 million	Marist College, Poughkeepsie; College of Staten Island, Staten Island ; Consortia of College of Staten Island (COSI), City University of New York, (CUNY), and Hunter College

(CART) Programs	development; better leverage State funding with investments from the Federal government, industry, foundations, and not-for-profit organizations with an economic development mission; and increase competitiveness of New York companies.		
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Source: New York State Science and Technology (NYSTAR website) www.nystar.state.ny.us.

Table 1: New Jersey State Economic Development Initiatives

Research Program	Objective	Budget:	Location
New Jersey Technology Fellowship Programs	Provide doctoral graduates with entrepreneurial experiences in pursuit of the creation of “high quality” “high tech” jobs	\$65K salary (1 st year) \$75K salary (2 nd year) Additional \$10K/yr on career development expenses	Statewide
New Jersey Technology Incubator Network	Provide a professional business environment, administrative support and networking opportunities		Statewide
Edison Innovation R&D Fund	Funding for high tech firms allied with academic/research institutions or business/industry for proof-of-concept R&D to commercialize technologies	\$100K - \$500K	Statewide
Edison Innovation Centers of Excellence Federal Matching Program	State matching Funds to support federal grants for research centers of excellence in key areas aimed at leveraging federal investment in New Jersey’s research and development base.	Up to \$500K	Statewide
University Intellectual Property Program	Provides funding to support research aimed at developing new products, new firms, and new quality jobs.	\$1 million in FY 2005 (year launched) \$2 million in FY 2006 \$1 million in FY 2007	Rutgers University University of Medicine and Dentistry of New Jersey New Jersey Institute of Technology (NJIT) Princeton University
Small Business Innovation Research Bridge (SBIR) Program	Provides grants to firms which have completed SBIR Phase I award and bridge the funding gap during the waiting period for Phase II.	\$50K	Statewide
Incubator Seed Fund Grant Program	Provide grants to emerging technology firms within 12 networked state-funded incubators and is aimed at providing assistance to reach critical milestone in their development and commercialization path.	\$20k - \$50K	
Stem Cell Research Grant Program		\$10 million budget -\$300K	In 2005, \$5 million were awarded to 17 research

		individual research grants -\$1 million to \$3 million core facilities research grants.	teams across academic and research institutions and corporate R&D labs.
SBIR/STTR Training & Assistance	Provides training throughout the year to empower entrepreneurs with the tools and skills to become successful. Training sessions focus on different agency solicitations and topics,	Nominal fee charged for attendance	Firms, entrepreneurs and students interested in the SBIR/STTR process are eligible and encouraged to attend.
Stem Cell Symposium	Provides networking opportunities for scientists, researchers, business/industry representatives, venture capitalists, and institutional funders such as NIH and other research foundations.		
Incubator Feasibility	Provides funding to support constituencies interested in creating an incubator.		
New Jersey Manufacturing Extension Program	Provides assistance to small and medium sized firms to become more productive, profitable and globally competitive via seminar/training sessions and needs assessments.		
Edison Innovation Zones (EINs)	EINs are geographical areas within cities across the state. They consist of collaborative efforts of universities, research institutions and related businesses as well as EDA, NJCST, and other state agencies. By providing commercialization facilities (lab and office space) for early-stage firms, EINs represent "technology neighborhoods" and provide a mechanism to facilitate rapid transfer of discoveries from the laboratory to the marketplace. growth companies.	Unspecified financial incentives are available to eligible technology and life sciences firms locating in these zones.	

Source: New Jersey Commission on Science & Technology (NJCST website) www.nj.gov/scietech/programs

Pennsylvania State Economic Development Initiatives:

Research Program	Objective	Budget:	Location
Centers of Excellence (COEs) Food Innovation (CFI); Dielectric Studies; Radio Frequency Identification (RFID); Piezoelectric Materials and Devices; Structural Health Monitoring; Networking and Security Research; Nanoscale Lignocellulosic Materials; Nanoparticulate Science & Engineering; Manufacturing Enterprise Integration.			Pennstate University Park
Investment Strategies		\$50K - \$150k/yr for three 3 years	
Transformative Businesses Services Network (TBSN)	Program fills in the knowledge gaps faced by early-stage portfolio companies by providing expertise in marketing, human resources, accounting, strategic planning and advertising		
Incubator Partners: Business support services and resources tailored to early-stage firms--including management guidance, business planning, strategic planning and marketing counsel; Connections to angel investors and venture capitalists; Assistance in preparing and perfecting funding presentations; An entrepreneurial culture that fuels innovation; Below-market rental space rates with flexible leases	Programs reduce operating costs for early-stage firms by providing shared basic office services and access to equipment, conference rooms, high-speed Internet and other amenities		Statewide through 4 (four) geographically dispersed Strategic centers
Workforce Initiatives	Provide sustainable training infrastructure across our region to address the human resource needs of small and medium-sized firms including industry-specific training and development services		
Business Plan Contests Ben Franklin Venture Investment Forum, in conjunction with Ben Franklin Technology Partners, and the Small Business Development Centers (SBDC)	Sponsors Business Plan Competitions	\$25K	Regionally Across several universities

<p>Our offices are located on the Penn State Harrisburg campus in Middletown, Pennsylvania. Support for the organization is provided by the Ben Franklin Technology Partners of Central and Northern Pennsylvania, Penn State Harrisburg and numerous private partners.</p>			
<p>Venture Investment Forum</p>	<p>Provides access and investment opportunities, management training, and linkages to promising early-stage firms</p>		<p>Statewide</p>

Source: Ben Franklin Technology Partnerships (BFTP website) www.benfranklin.org