

**Entrepreneurship Policy:  
What It Is and Where It Came From**

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Entrepreneurship was in vogue in the 1990s. Best-selling books and feature-length movies documented the trials and tribulations of trendy start-up companies, complete with foosball tables and macaws-in-residence. Twenty-somethings worth billions on paper partied with Hollywood stars and were feted by Washington pols. After the dot-com bubble burst in 2000, turning a lot of that paper into confetti, the cultural fascination with entrepreneurship faded. The old brand names of corporate America, by and large, regained their places in the consciousness of consumers and investors. As 2001 closed, the autobiography of General Electric CEO Jack Welch topped business book-buyers' Christmas lists; one can be confident that neither "foosball" nor "macaw" appears in the index of *Jack: Straight from the Gut*.

Appearances, though, can be deceptive. The entrepreneurship fad rested on a foundation of fact. New companies made significant contributions to economic growth in the past decade, both directly and by stimulating their more established competitors, as they indeed had in the decades before that. If the fad exaggerated these contributions, its fading should not obscure them entirely. Entrepreneurship is an economic phenomenon worthy of attention from those who worry about economic growth and particularly from those charged with sustaining that growth.

Such, in any case, is the premise of this volume. The contributors collectively assert that the level and quality of entrepreneurship make a difference in the economic vitality of communities, regions, industries, and the nation as a whole. We argue that policy-makers may

be able to enhance the latter by enhancing the former, although we are hardly uniform in our assessment of how to go about trying. What matters most at this point is that the policy community not toss out the entrepreneurship baby with the dot-com bathwater. Entrepreneurship ought to be an explicit focus of policy design, choice, and implementation. Analysts can and should do a much better job of assisting policy-makers in making it so.

The term “entrepreneurship policy” is intended to capture this concept.<sup>2</sup> The domain of entrepreneurship policy is large. It encompasses activities at several levels of government, from local to national (and perhaps beyond). It bears on low-technology economic activity as well as high-technology (although the latter is emphasized here). It includes governance capacities more familiar under other headings, ranging from regulatory policy to economic development partnerships to poverty alleviation, along with some capacities that are new.

A modest volume like this one cannot comprehensively survey the myriad facets of this sprawling domain. Nor, given the inchoate state of scholarship, does it make much sense to attempt to establish a consensus about what entrepreneurship policy ought to be. We aspire merely to crystallize the idea of entrepreneurship policy and to illustrate its significance. If a lively national conversation about the interaction between public policy and entrepreneurship ensues (and even if we receive some brickbats in the process), we will have accomplished our main objective.

We have good reason to believe that the ground for such a discussion remains fertile, the boom and bust of the 1990s notwithstanding. U.S. policy-makers, particularly at the state and local levels, have been groping toward an explicit entrepreneurship policy for at least a couple of decades. Their experiments have typically been pragmatic, inspired by immediate needs and pressures and by one another’s example, rather than by a grand theoretical design. Scholars

have come to the subject more recently (with the exception of a few pioneers, some of whom are contributors to this volume, who have been exploring this terrain for many years). A number of disciplines, each with its own distinctive history, style, and language, have now converged on it, and their interaction promises to add momentum to all.

In the rest of this introductory chapter, I sketch out the domain of entrepreneurship policy more fully, defining crucial terms and situating the contents of this volume in a variety of contexts, including the international comparative context. I also lay out one version of what might ultimately be called the “prehistory” of entrepreneurship policy in the United States. I conclude by mapping out the rest of the volume.

### Entrepreneurship: A Narrow Definition

“Entrepreneur,” “entrepreneurial,” and the like have become highly desirable labels in recent years, so much so that the definition of entrepreneurship has blurred nearly beyond recognition. Public agencies are urged by advocates of reinventing government to become more entrepreneurial. The founders of non-profit service delivery and advocacy groups call themselves “social entrepreneurs.” “Intra-preneurs” challenge large corporations to adopt new ways of doing things.

None of these neologisms is relevant to “entrepreneurship policy” as the phrase is employed in this volume. As shall be seen, we adopt a dangerously broad definition of “policy,” but by “entrepreneurship” we mean (with the inevitable few exceptions) the processes of starting and continuing to expand new businesses. Our vision of these processes derives from Joseph A. Schumpeter, who conceived of the entrepreneurial venture as “the fundamental engine that sets and keeps the capitalist engine in motion” by creating new goods, inventing new methods of

production, devising new business models, and opening new markets (Schumpeter 1942, 83).

Entrepreneurship policy aims to foster a socially optimal level of such venturing. Usually (although this need not necessarily be the case), policy-makers seek to raise the level of entrepreneurship; entrepreneurship policy thus bears not only on actual entrepreneurs but also on “nascent” entrepreneurs, who are seriously considering starting a firm (Reynolds 2000).

Entrepreneurial ventures are not the same as small businesses, and entrepreneurship policy is therefore distinct from small business policy. Although many entrepreneurial ventures are small, they can be quite large in lines of business like airlines and telephony where the minimum efficient scale of operation is large. On the other hand, the well-established neighborhood restaurant or dry cleaners, although small, falls outside the definition. The distinguishing elements of entrepreneurship are novelty and dynamism. The phrase “continuing to expand” is essential to the definition, even though it creates serious difficulties for measurement and analysis.<sup>3</sup>

As Schumpeter suggests, technological innovation is a particularly important mechanism through which entrepreneurial ventures express their novelty and dynamism. Its importance stems in large part from the contribution that new technologies make to economic growth. Whether by saving capital, labor, or natural resources or by creating new capabilities, technological innovation expands the potential output of the economy, rather than simply shifting economic activity from one enterprise to another. Writing in 1940, Schumpeter predicted, ironically, that the innovation process would be routinized in large, stable enterprises, but this prediction has not been fully borne out. New entrants seem to be important catalysts of technological innovation, even when they prove to be business failures, as they often do (Scherer 1994; Utterback 1994). Older firms are forced to adapt under the pressure of innovative rivals,

lest they be replaced. The current interactions between traditional retailers and electronic commerce start-ups and between large pharmaceutical firms and biotechnology start-ups illustrate some of the potential patterns.

Economic globalization heightens the importance of technology-based entrepreneurship for the contemporary U.S., as David Audretsch points out in his chapter and elsewhere (Audretsch and Thurik 2001). The country cannot and should not compete internationally on the basis of labor costs. Huge pools of low-cost labor in developing countries are becoming available for export production, and they are likely to continue to grow in the coming years. U.S. competitive advantage lies in the creation and rapid exploitation of new ideas, whether for products, services, or productivity improvements. The term “knowledge economy” in this volume’s title signals this emphasis in the selection of contributions.

The knowledge economy, let me be clear, is only an emphasis and not an exclusive focus of this volume and of the field of entrepreneurship policy that we hope it will help to spawn. Entrepreneurship policy strategies that target lower-technology entrepreneurial ventures may well be appropriate for particular jurisdictions. Analyses using aggregate data on entrepreneurship may shed light particularly on such strategies and ventures, since they vastly outnumber their high-tech brethren. Our definition of entrepreneurship embraces all businesses that are new and dynamic, regardless of size or line of business, while excluding businesses that are neither new nor dynamic as well as all non-business organizations.

### Public Policy and Governance Within the Context for Entrepreneurship

The determinants of entrepreneurship, entrepreneurial success, and the impacts of entrepreneurship on society are the subjects of a growing body of research, primarily in the

disciplines of economics, geography, management, psychology, and sociology.<sup>4</sup> Early work in the field concentrated on the qualities of entrepreneurs as individuals and the business strategies that they employed. Recent work has sought to integrate this understanding of the “supply” of entrepreneurs and entrepreneurial strategies with an analysis of the “demand” for entrepreneurial ventures or, more broadly, the “opportunity structure” or “context” for entrepreneurship (Aldrich 1993; Thornton 1999).

The context for entrepreneurship includes a wide range of economic, social, and cultural factors. General economic conditions and the availability of such resources as financial capital, intellectual property protection, and specialized skills are clearly important. So too is the density and intensity of competition within the nascent entrepreneur’s chosen market. The legitimacy of the potential venture – whether it conforms to well-understood and well-accepted social and cultural norms – may influence its viability, success, and impact as well. The availability of specialized information may determine whether entrepreneurs are able to recognize and act on potential opportunities (Aldrich and Fiol 1994; Shane and Venkataraman 2000).<sup>5</sup>

Public policy and governance can shape virtually all of the contextual determinants of the demand for entrepreneurship and, over a longer time scale, the supply of entrepreneurs as well. Public policy and governance, as these terms are employed in this volume, refer to intertwined but distinct processes. Public policy means the intentional use of the powers of government to effect a societal outcome, like a change in the number of entrepreneurial ventures. Governance refers to conscious collective action that extends beyond government, deploying, for instance, the capacities of businesses, community groups, and academic institutions to bring about such an outcome. Entrepreneurship policy often aims to catalyze better governance, for instance, by

fostering networks of potential customers and service providers, the presence of which reduces the uncertainty facing nascent entrepreneurs.

Not all public policy that shapes the context for entrepreneurship and the supply of potential entrepreneurs is entrepreneurship policy, as we use the term here. Education policy, for instance, may influence the legitimacy of entrepreneurial ventures and the knowledge, skills and networks possessed by individuals and social groups. Macroeconomic policy, to take another example, affects short-term capital availability and the conditions of international trade. All of these policy outcomes contribute to the context for entrepreneurship. This volume, however, concentrates on policy that can have an impact within a period of years on what the 2001 *Global Entrepreneurship Monitor (GEM)* labels “intermediate conditions” for entrepreneurship, rather than education policy and the like, which influence “background conditions” over a decade or more, or macroeconomic and associated policies that shape “short-term conditions” on a monthly basis (Reynolds et al 2001).<sup>6</sup>

The reader should not draw the implication that areas of public policy and governance omitted from our definition of entrepreneurship policy are unimportant. Indeed, a growing body of research suggests that background conditions are especially important in explaining differences in levels of entrepreneurship and economic development across countries over long periods of time. Systems of property rights, for instance, which provide the fundamental legal underpinnings of markets, profoundly structure investment and risk-taking behavior. There are complex feedbacks between legal systems, cultures, institutional development, and economic change that warrant further attention from scholars and practitioners alike. U.S. institutions, viewed at this high level of abstraction, are quite supportive of entrepreneurship (Rosenberg and Birdzell 1986; North 1984).

Our limitation of the scope of entrepreneurship policy by reference to intermediate conditions is largely pragmatic. Since the contributions to the volume are confined to a single country, background conditions do not vary very much. More important, the time scale on which intermediate conditions can change allows policy-makers the possibility of perceiving (and perhaps taking credit for) the consequences of their efforts. This definition also permits us to take for granted some well-established boundaries among policy domains, like education and macroeconomic policy, for which entrepreneurship is not generally a driving consideration. Without such boundaries, there is a danger that entrepreneurship policy will simply encompass all of public policy and thus lose its meaning. As *GEM* puts it, “the more careful the analysis, the more complex the entrepreneurial process appears to be;” the same could be said of the linkages between entrepreneurial and policy processes (Reynolds et al. 2001, 23).

#### Entrepreneurship Policy By Other Names: A Brief Historical Outline

Entrepreneurship policy and related processes of governance for our purposes, then, are not unlimited in scope, but they nonetheless encompass quite a bit. They are carried out at the local, regional, state, and national levels within the U.S. The specific capacities of government and its partners in governance that are deployed to foster entrepreneurship vary as substantially as the communities and economic activities they seek to influence. Some of these capacities are quite old, while others have risen afresh in just the past few years. We hope to knit these diverse threads together conceptually to form the fabric of entrepreneurship policy.



## The Federal Level

Perhaps the most obvious place to begin a survey of what we hope our new rubric will embrace is the Sherman Antitrust Act, which was passed by the U.S. Congress in 1890. It is this legislation more than any other single entrepreneurship policy measure that distinguishes the U.S. from other industrial countries historically. The Sherman Act was the culmination of years of popular agitation sparked by the perception that large firms were becoming dominant in the economy. It restricted the behavior of these firms in part to preserve opportunities for entrepreneurship, although it is important to acknowledge other motives behind the antitrust movement, including protectionism (with respect to existing small town businesses) and moral outrage (at the power wielded by the captains of industry). Over more than a century of development of antitrust law and policy, the entrepreneurial motivation has endured, and the analysis of barriers to entry and how they are maintained remain at its center (Hart 2001).

Federal regulatory policy also intersects significantly with entrepreneurship. Economic regulation, such as that imposed on the energy, communications, transportation, and financial sectors, was initially oriented toward stability, reliability, and coordination, virtues thought to inhere in monopolistic or oligopolistic industrial structures. Regulatory policy as it was implemented through most of the twentieth century thus discouraged entrepreneurship. On the other hand, the architects of "deregulation" over the past quarter-century (which might, as Viktor Mayer-Schönberger describes in his chapter, more appropriately be labeled "regulatory restructuring") have sometimes explicitly sought to expand entrepreneurial opportunities in regulated sectors. Eli Noam's chapter on entrepreneurship in telecommunications describes one particularly vivid chapter in this story.

The constraints imposed on established firms by antitrust and regulatory policy have been paralleled by a set of federal policies intended, at least by some accounts, to support entrepreneurial ventures. The intellectual property rights regime, for instance, has been tightened steadily since the 1970s, so that rights-holders have become more likely to win protection and to prevail in court. New sorts of products and processes, ranging from life forms to business methods, were made patentable, and software and other new digital forms of expression were copyrighted. Universities and other recipients of federal research and development (R&D) funding were encouraged to seek intellectual property protection for findings made with federal support and permitted to offer exclusive licenses to exploit them. These protections have provided the asset base for many recent entrepreneurial ventures.

Financial incentives for entrepreneurship have also been forthcoming from federal policy-makers. Modest direct subsidies for entrepreneurial ventures have been made available through, for instance, the government-wide Small Business Innovation Research (SBIR) program and Commerce Department's Advanced Technology Program. More significant are preferential procurement programs that have channelled money from federal projects to small businesses and to businesses owned by women, minorities, and other groups historically underrepresented in the entrepreneurial community (although not all the recipients necessarily meet our definition of an entrepreneurial venture). Federal loan guarantee programs encourage private lenders to do business with such firms as well. Changes in the U.S. tax code, such as fluctuations in the treatment of capital gains, have affected the availability of equity financing for entrepreneurial ventures. Federal rules governing investment also have such effects on occasion; a 1978 rule change that permitted pension funds to place a small portion of their assets in high-risk

investments, for example, contributed significantly to the expansion of the venture capital industry, which in turn has fueled entrepreneurship.

Relatively few federal entrepreneurship policy measures have had impacts as unambiguous as this rule change. More often, the consequences for entrepreneurship continue to be debated, sometimes hotly. Early antitrust policy, for instance, probably facilitated rather than slowed the concentration of industry. Stronger intellectual property laws may have provided more new avenues for incumbents to entrench themselves than opportunities for start-ups to create defensible positions. Subsidies like SBIR may provide life support to firms that are not viable (Roy 1998). Moreover, the various areas of policy-making touched on here are typically not coordinated, and the resulting policies may even pull in opposite directions. All the more reason, then, to try to conceptualize and analyze entrepreneurship policy as a whole and perhaps to move toward making it in the same fashion.

#### State, Regional, and Local Initiatives

If one dates Federal entrepreneurship policy from the passage of the Sherman Act, it has been in force for more than a century. Comparable activities at other levels of government have a more recent provenance, but they have often been more explicitly oriented toward fostering entrepreneurship than Federal policy. The "entrepreneurial state," to use Peter K. Eisinger's characterization, arose in the 1980s as a response to the perception that established state, regional, and local economic development models, especially "smokestack-chasing" (that is, offering incentives for firms from outside the jurisdiction to locate facilities there), were no longer effective in an age of rapid technological innovation, global economic integration, and federal downsizing (Eisinger 1988). States, regions, and localities, advocates for new forms of

economic development policy argued, would have to "grow their own" economic base. The example of Silicon Valley, with its knowledge-based economy powered by research universities, start-up companies, and supporting services, loomed large in many of these discussions. Several streams of policy experimentation emerged from this conversation that continue today.<sup>7</sup>

Of course, the challenges facing subnational economies in the U.S. vary substantially; entrepreneurship policy naturally reflects this variation. Strategies for nurturing knowledge creation, for instance, range from "making the peaks higher"<sup>8</sup> where centers of academic excellence already exist to starting from scratch where they are absent. California, for instance, is making substantial investments in university-based institutes in such fields as biotechnology, information technology, and telecommunications that will supplement the substantial federal R&D funding that nourishes the state's world-leading centers of high-technology entrepreneurship. Georgia, by contrast, has made extensive efforts to build a competitive university system from a very weak foundation. An important element of the state's program is the Georgia Research Alliance, a public-private partnership which spent \$242 million in state funds and \$65 million in private funds during the 1990s, in an effort "to foster economic development...by developing and leveraging the research capabilities of the research universities..." (Georgia Research Alliance 2002).

As the term "leveraging" in the Georgia Research Alliance's mission statement highlights, knowledge creation alone does not necessarily lead to entrepreneurship. Subnational governments in the U.S. use a variety of policy instruments to facilitate the movement of knowledge out of academia and into start-up and growth businesses. Some sponsor facilities, like incubators and science parks, in which these firms can locate their offices and operations. University technology transfer offices, many of which are entities of state government, oversee

the licensing of intellectual property rights from campus research; increasingly, they are willing to exchange these rights for equity stakes in entrepreneurial ventures. A number of states have created venture capital funds (often with investments from state university endowments), the most successful of which specialize in seed funding, a stage at which private venture funds are typically reluctant to invest (Plosila 2001).

Another set of initiatives at the state, regional, and local levels aims to provide business services and networking opportunities to entrepreneurs, whether affiliated with universities or not. The federal-state Manufacturing Extension Partnership, for instance, has outposts in all fifty states that disseminate best practices among small manufacturing firms (although these firms are not exclusively entrepreneurial ventures) and link them to a range of service providers (Shapira 1998). Subnational governments commonly seek as well to identify emerging clusters of industrial activity and to catalyze the development of industry-wide institutions that foster connections within the cluster and articulate its needs; these processes often clarify and enhance opportunities for entrepreneurship (Porter 1990; Porter 1997). Broader strategies for attracting and retaining talented people by enhancing the quality of life, like Austin, Texas's investment in its creative community, may also have important consequences for entrepreneurship (Watson 2001).

Finally, policy-makers concerned about distressed communities have sometimes sought to rely on entrepreneurship as a tool for alleviating poverty. Michael E. Porter of the Harvard Business School, for example, stirred significant controversy with a 1995 article articulating "The Competitive Advantages of the Inner City," and his Initiative for a Competitive Inner City is working with city officials around the U.S. to implement entrepreneurship-oriented strategies (Porter 1995). Some programs (for instance, in the welfare-to-work and microenterprise areas)

even seek to make entrepreneurs out of the nation's most-disadvantaged citizens, although whether entrepreneurship motivated by necessity (as opposed to entrepreneurship motivated by opportunity (see Reynolds 2001)) ought to be conceived of as a mechanism of economic growth is unclear.

### Does Entrepreneurship Policy Produce Entrepreneurship?

Entrepreneurship policy is the sum of all the often uncoordinated and sometimes poorly-designed activities illustrated in the previous section. The nascent entrepreneur faces a series of discrete choices on the path to organizing a functioning firm, and so she totals the impact of assistance flowing from government and governance on a single bottom line, whether that assistance appears in the form of a loan or subsidy, a contribution to social or intellectual capital, or a constraint on a future competitor. She may not even recognize public policy as the ultimate source of some forms of assistance, such as ideas developed by academic scientists with the support of government research funds or government guarantees that facilitate loans made by private financial institutions.

In any event, it is possible that the entry on her ledger for entrepreneurship policy – even if accounted for accurately -- is but a pittance (Bhide 2000). The context for entrepreneurship is complex and encompasses far more than public policy and governance. Background conditions, such as the educational and demographic profile of a jurisdiction and its institutional endowment, may be strongly self-reinforcing, whether in the direction of spurring entrepreneurship (as in the case of well-known high-technology regions) or not (as some declining areas know all too well). Short-term conditions, like interest rates and capital availability, can also be powerful influences on entrepreneurial decision-making, although over the course of an economic cycle, the

immediate stimuli and deterrents to entrepreneurship ought to roughly balance out. Even within the intermediate time frame on which we focus our attention, there are many forces immune from manipulation by entrepreneurship policy-makers. Industries rise and decline; potential key customers display strategic brilliance or blunder; new technologies take off or peter out. Natural disasters and acts of war happen.

The impact of entrepreneurship policy on entrepreneurship surely is swamped sometimes by other factors, perhaps even much of the time and in many places and sectors. A certain skepticism for the concept is warranted. But the skeptics ought to be open-minded. One can just as surely identify instances in which public policy and governance were the key determinants of the level and quality of entrepreneurship. Biotechnology entrepreneurship, as the chapters by Nathan Rosenberg and Andrew Toole show, is one such instance. The rise of the Washington, D.C. area as a hotbed of high-technology entrepreneurship is a regional example (Feldman 2001). Cases lie in between these extremes often enough to merit attention, we believe; entrepreneurship policy in these instances is one evident set of forces among many shaping the context for entrepreneurship. The impact of entrepreneurship policy, in any case, need not be static. Well-designed and carefully implemented policy initiatives may enhance its impact, just as poorly thought-through and badly managed efforts may reduce it or produce negative effects.

Most of the time, though, policy analysts do not know enough about the interaction between entrepreneurship and public policy to identify these opportunities and risks (see Bartik 1991; Isserman 1994; Dewar 1998).<sup>9</sup> Policy-makers, for their part, are no better informed than scholars and may not even necessarily be aware that such opportunities and risks might exist. Policy-makers and their partners in governance need to acquire more knowledge and to give entrepreneurship more attention if they are to govern the economy -- especially knowledge

economy -- well. Although entrepreneurship is a booming area of study in business schools, it has been ignored almost completely by schools of public policy and government. This volume is an effort to highlight our ignorance and to begin to diminish it. Entrepreneurship policy will never by itself determine what entrepreneurs do and how they affect society, nor should it aim to do so. But where public policy and governance can and do shape entrepreneurial behavior, we ought to be conscious of their consequences and improve them to the extent possible. Where we can learn enough to take action, we ought to do so.

### An Introduction to the Volume

The twelve chapters of this volume (not counting this introduction) are divided into five sections. The first section takes the broadest view of entrepreneurship policy, asking the question "The Entrepreneurial Society: What's Governance Got To Do With It?." David B. Audretsch of Indiana University argues that entrepreneurship policy ought to be seen as a key element in the "strategic management of places." In a world in which firms can migrate easily, regional decision-makers need to cultivate more permanent sources of competitive advantage, namely, the capacities to create new firms and to innovate. As Audretsch shows, this shift in thinking represents a marked break from the past. The chapter by Richard Florida of Carnegie Mellon University picks up on this theme, connecting entrepreneurial vitality to broader strains in the culture and lifestyle of particular places. He shows the importance of diversity and openness in attracting talented and well-educated people who are likely to become entrepreneurs. Regional development outcomes will be shaped much more by the distribution of people, he argues, than by the distribution of firms.



The next section focuses in on the impact of public policy on the internal process of two of the key institutions of the knowledge economy: technology-based entrepreneurial ventures and research universities. Philip E. Auerwald of George Mason University and Lewis M. Branscomb of Harvard University's John F. Kennedy School of Government analyze the often arduous process that is entailed in bringing newly invented technologies to the point of commercial viability. Their model of the path "from invention to innovation" leads them to highlight actors, particularly "angel" investors, corporate venture funds, and Federal programs, that have been overlooked in previous work. Auerwald and Branscomb highlight opportunities for governance processes to break bottlenecks that otherwise cause good ideas to lie fallow. Maryann P. Feldman of the University of Toronto takes the reader one step up the chain of knowledge creation and entrepreneurship in her chapter on university-based entrepreneurship and technology transfer offices. The institution of the technology transfer office has diffused throughout the country in the past twenty years; few self-respecting research universities are without one these days. Feldman analyzes the instruments that they use to channel technologies from the lab to the market and points to both strengths and weaknesses in their contribution to the governance of entrepreneurship. Stanford University's Nathan Rosenberg takes us the rest of the way up the chain into the core activities of research universities in his chapter. He shows that universities in the U.S. are highly responsive to their environment, and particularly responsive to the emergence of entrepreneurial ventures that demand that new knowledge be created or diffused. Strongly influenced by federal and state policies, universities alter their curricula, initiate research, and participate in collaborations that serve these ventures, thereby allowing them to be more competitive with larger and better-financed competitors.

The third section explores equity issues in entrepreneurship policy, emphasizing opportunities for policy-makers to support the participation of women and minorities in the knowledge economy. Science policy analysts have long been concerned with the “pipeline” of women and minorities with training in science and engineering; we extend that discussion here into the realm of entrepreneurship. Candida G. Brush of Boston University and her colleagues in the "Diana Project" analyze why women-led businesses receive a disproportionately low share of venture capital investments. They argue that the most likely cause of this maldistribution lies in the network structure of the venture capital industry, rather than in the aspirations or capabilities of women entrepreneurs. Innovative, but modest, policies might help to rectify the situation. Timothy Bates of Wayne State University reviews what he sees as the failed history of federal and state programs to support minority entrepreneurship. Most of these programs, he argues, are designed to fail, since they target individuals who do not have the requisites for entrepreneurial success. A few programs, however, have escaped this trap, focusing their attention on well-educated and experienced people who might become successful “opportunity” rather than “necessity” entrepreneurs. Bates recommends that the principles of these exemplars be adopted more widely.

Like the particular communities highlighted in the third section, particular economic sectors have unique attributes as objects of entrepreneurship policy, which are explored in the volume's fourth section. The biotechnology industry, which is intimately entwined with public policy, is the subject of the chapter by Andrew Toole of Illinois State University. Toole sketches the influence of public research funding, intellectual property law, regulation, and ethical controversies on biotechnology entrepreneurship. He then looks in detail at the determinants of success in building up this industry at the regional level, providing findings that link tightly to

the chapters on research universities. Viktor Mayer-Schönberger's (Kennedy School of Government, Harvard University) chapter on e-commerce moves in quite a different direction, reflecting the very different features of this industry; he dissents from the commonly-held view among Internet entrepreneurs that the law can only be a drag on their endeavors. To the contrary, he claims that entrepreneurs need legal structures to minimize the few risks that they can control. Using a transactional analytic approach, Mayer-Schönberger maps out a legislative agenda to improve law's utility for e-commerce entrepreneurs and suggests that legislators tackle it via "legal entrepreneurship." A chapter on telecommunications entrepreneurship by Eli Noam of Columbia University closes the section. Policy initiatives over the past several decades gradually opened the telecommunications system to new entrants, peaking with the 1996 Telecommunications Act, which unleashed a frenzy of entrepreneurship. This trend, Noam shows, has now reversed, reflecting the cyclicity injected into this previously stable industry in the presence of large economies of scale and considerable regulation. Policy-makers will need to take affirmative steps to aid new entrants in the future if further entrepreneurship in this industry is to occur.

The final section of the volume broadens out the perspective once again, looking at questions related to the enactment and implementation of entrepreneurship policy. My own chapter explores how entrepreneurs, who are intrinsically resistant to engagement in public policy and governance, may nonetheless be induced to take part in making entrepreneurship policy. New institutions that overcome the barriers to participation by entrepreneurs in the policy process are required for them to make this leap at the same time that they take the leap in business. Patrick Von Barga, Doris Freedman, and Erik R. Pages of the National Commission on Entrepreneurship dig into the nitty-gritty of state and local economic development strategies

that focus on entrepreneurship. They assess earlier efforts that they view as largely unsuccessful and contrast these with promising new approaches aimed at building an entrepreneurial climate. The Von Bargen, Freedman, and Pages chapter return us full circle to the issues raised by Audretsch and Florida in the opening section of the book.

This volume is more *tapas* than *smorgasbord*. As I noted at the outset of this chapter, we do not claim to have digested the whole domain of entrepreneurship policy, much less to have resolved all the academic controversies and given guidance on all the burning policy choices within it. We encourage the reader whose appetite has been whetted to forage further, to keep her eyes peeled for further developments that are sure to follow, and to take part in the debates among academics and practitioners who form the entrepreneurship policy community.

## Notes to Chapter 1

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<sup>1</sup> Thanks to Maryann Feldman, Erik Pages, and Candy Brush for their comments on this chapter and to the Center for Business and Government (especially its director, Ira Jackson) and the National Commission on Entrepreneurship for their support of this project.

<sup>2</sup> "Entrepreneurship policy" is a concept and a phrase whose time seems to have come. Although rarely used in the past, it has begun to achieve modest prominence, particularly in Europe. See Anders Lundstrom and Lois Stevenson, *Entrepreneurship Policy for the Future* (Stockholm: Swedish Foundation for Small Business Research, 2001)

<sup>3</sup> Some researchers, following the lead of David Birch, address this difficulty by focusing on "gazelles," publicly traded companies that have grown at an annual average compound rate of 20% or more for the previous four years.

<sup>4</sup> My own field of political science is notably absent from this area of social science research.

<sup>5</sup> This paragraph illustrates, rather than exhausts, the list of contextual factors that may affect entrepreneurship.

<sup>6</sup> One of the inevitable exceptions to this statement that merits note is the discussion of entrepreneurial education programs in the chapter by Pages, Freedman, and Von Bargaen.

<sup>7</sup> For further details and a contrasting perspective on state and local development policy efforts, the reader need look no further than the chapter by Pages, Freedman, and Von Bargaen.

<sup>8</sup> This quotation, attributed to Wickliffe Rose, summarized the early investment strategy of the Rockefeller Foundation, which seeded American research universities in the first half of the twentieth century, before the advent of large-scale Federal R&D funding.

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<sup>9</sup> There is a growing literature on the impact of the “entrepreneurial state,” but it is still inconclusive.