

Regional Advantage: Culture and Competition in Silicon Valley and Route 128 by Annalee Saxenian (Harvard University Press, Cambridge, 1994) xi + 226 pp., US\$24.95, ISBN 0-674-75339-9.

I read this book and am now writing this review in a popular cafe in the heart of Silicon Valley. This is definitely an "Apple Bar"! As I look around the room I can count six Apple Powerbooks in use (including my own) and there are sure to be others more concealed in sporty backpacks. In dimly lit corners, groups of engineers sit huddled in intense discussion just before hopping back to the office for the night. In the adjoining bookstore, management guru Tom Peters is extolling the virtues of flexibility as a response to competitive pressures.¹ All in all a perfect atmosphere for me to digest a work exploring on what made Silicon Valley, well Silicon Valley.

The scene here is indicative of the culture of the region. Silicon Valley (SV) lives and breathes computers and high technology. In her book, Annalee Saxenian paints a picture of a land where venture capital funds for risky projects are freely flowing, professionals switch jobs quicker than they switch word processor packages, and people are willing to talk and share information with others, no matter who they work for. And her thesis is that this complete preoccupation and sense of community has made Silicon Valley the dynamic, innovative region it is today.

This is in stark contrast to the story she tells of the other traditional high technology centre in the United States, the Route 128 highway around Boston. While SV's high technology workforce has been growing, Route 128's has been declining. Its firms are scattered around the region. They are insular, vertically integrated, and secretive. Capital comes from traditional, internal sources or established financial institutions. Job mobility is a sign of failure rather than an accepted norm. From her descriptions one could get the impression that SV is everything Route 128 is not.

But the two regions share something very prominent in common. They are both localised concentrations of the computer industry. They had similar origins in university ties (SV with Stanford and Boston with MIT) and defense contracts. Moreover, during the 1970's both were celebrated high technology growth centres.

Despite these similarities, the climate in each region was very different, even beyond the obvious meteorological differences. As an example, consider attitudes to job mobility. Route 128 firms had traditional personnel management policies and career paths. People stayed with a single firm and leaving was a major decision. Firm loyalty was a premium. In contrast, SV professionals stayed in their jobs an average of two years. Job switching was not frowned upon and was seen as a way of establishing new informal networks and ties with competitors. It was said that people changed jobs "without changing car pools." (p. 35) The social structure meant that new hires were often people you already knew rather than someone off the street. There was intense competition for talent, but those who left a firm were not considered traitors and could return if things did not work out. On the other hand, employees of Route 128's DEC, for example, "...were often treated as pariahs, rather than as potential resources. Once an employee left, there was no option of return." (p. 75) In contrast, loyalties in SV are more craft than firm-based. In the words of one entrepreneur, "there are a lot of people who come to work in the morning believing that they work for Silicon Valley." (p. 37)

But the acceptance and embrace of high job mobility allowed other capabilities of SV to emerge. Often people left firms to explore their own ideas. The culture of mobility provided additional liquidity to these types of decisions minimising the personal risk of entrepreneurship. Indeed, failures were common and accepted.² This understanding lead to greater informal and formal cooperation.

One of Silicon Valley's few women entrepreneurs, who was starting a software business and couldn't afford the big mainframes and minicomputers of the day, reports that friendly Hewlett-Packard executives allowed her team to work on HP computers in the wee hours of the night. She recalls showing up at HP with sleeping bags. (p. 44)

But cooperative arrangements such as joint ventures and strategic alliances were also quite common.

These cooperative arrangements seem unusual in part because of the intensity of competition in Silicon Valley. Competitive rivalries were often highly personalised, since status was defined by technical excellence and innovation as much as by market share. The surpassing need to bring products or technologies to market ahead of competitors produced an unusually hard-driving work ethic. Intense peer pressure among an ambitious and talented professional community forced engineers to work extraordinary long hours and contributed to high rates of drug use, divorce, and burnout in the region. (p. 47)

So the culture of SV had its downside, although Saxenian does not really explore this. Indeed, this is an unfortunate neglect on other dimensions as well. Paul Krugman, the renowned trade theorist and regional economist, who has just moved from MIT to Stanford, laments the high housing prices in SV: "If I ever leave here I can sell my house and buy a small Mid-Western city!" The advantages to regional agglomeration can enhance the negative effects of urbanisation. And this fact must be true of Route 128. To this extent, Saxenian's arguments as to its troubles are not totally convincing. If its problems are so great then its decline should be exacerbated by the disadvantages associated with urban congestion. Firms and workers all choose to locate in Boston because it has advantages that outweigh costs. Route 128 must have some relative advantages that Saxenian fails to stress.

Nonetheless, although her conclusions regarding the long run comparative performance of the two regions is not as careful as an economist would like, Saxenian's descriptions of how both regions reacted to their respective crises is quite interesting. In the mid-1980s, both SV and Route 128 suffered from the disadvantages of regional specialisation: that is, vulnerability to industry specific shocks and competition. For SV, the emergence of a dominant design for semiconductor memory chips meant the loss of market share to Japanese producers. For Route 128, the increase in the computing and networking power of personal computers and workstations caused a competitive crash in the mainframe and mini-computer markets. Each region had bet on a product, won for a time, then lost. Saxenian quotes Theodore Levitt to give some perspective to the crisis: "The railroads did not stop growing because the need for passenger and freight transport declined, but because it was not filled by the railroads themselves." (p.83) But while this is a somewhat appropriate picture for mini-computers, it is less compelling for SV. Memory chips are still valuable, it is just that their optimal production technology came to be based on mass production rather than smaller, flexible organisations that Saxenian extols as the strength of SV. Likewise it seems inappropriate to place complete blame for Route 128's problems on its more traditional, mass production organisational form when its market disappeared.

What is interesting about these crises is how firms in each region responded to them. After a brief, but unsuccessful, flirtation with mass production, SV firms turned to other markets that were ripe for innovative product development. "The ease of new firm formation meant that many more technical paths were pursued in SV than would have been possible in either a traditional firm or a region with less fluid social and industrial structures." (p. 112) Thus, at a regional level there was more experimentation and this enhanced the region's adaptability to change. Indeed, so decentralised was Intel that it had a new capability in microprocessors before its senior managers were aware of it.³

For Route 128, adjustment was more difficult. All of the problems with organisational change that plague large firms in other industries, were felt by DEC, Data General and the like. Policies of vertical integration and self-sufficiency, optimal when there is a stable product design and mass market, are, in turn, practices that limit an organisation's flexibility. But observe that while these qualities of organisations are impediments to smooth adjustment there is a vast literature as to why they might be successful in other environments.⁴ The memory chip market is a case in point. *Regional Advantage* suffers from an affliction common to many anecdotal studies of organisations and markets, perhaps exemplified by the popular management literature: it purports to find "The Way" to successful management when it has only identified "a way". Small, decentralised, flexible firms work well in certain industries at certain times. But just observing that this is the case for one or a small number of industries over a period of time does not make it a general prescription of optimal organisational design. The anecdotes are interesting but the cursory normative statements are to be taken cautiously.

At a deeper level, what is interesting about *Regional Advantage* is its implications for how we think about regional agglomeration. Many theories in economics posit why firms tend to locate in the same area, even though this causes higher land rents and congestion. Some describe reasons for workers to move to the same area and such factors are clearly critical for the effects described in the book. Another strand in the economics literature emphasises the desire of firms to agglomerate to take advantage of knowledge spillovers. Nonetheless, the actual theories only explore this as a potential explanation of agglomeration and do not consider its accompanying implications. Saxenian describes why knowledge spillovers are important in SV. In contrast to previous writings, she views firms as attempting to utilise the existence of such spillovers rather than merely moving into the area to have knowledge fall on them like localised "manna from heaven." The very cooperative arrangements, labour mobility and spin-offs, that Saxenian describes, are all logical manifestations of a desire to absorb knowledge from others. And is this *active* aspect of knowledge spillovers that has been neglected by regional and urban theorists. Knowledge is not simply, "in the air", as Marshall put it. One needs to invest in organisational capabilities to collect it just as one needs to build a tank to collect rainwater.⁵ The precise manifestations that one would expect to see along this line are, therefore, an important area for future research.

Finally, and along similar lines, the intricacy of the process by which the gains from regional agglomeration are realised represent an important challenge for policy makers. Those who attempt to devise policies to encourage the development of high technology growth centres can learn a lot from this book. Simply providing tax incentives and even subsidies may not be enough to encourage regional development in certain industries. Firms are not necessarily isolated pools (and to some extent cannot be expected to be such) but are embedded in their regional economy. How actual networks can be created with the appropriate "cultural beliefs"⁶ that go alongside them is largely unknown and it is unlikely that simple policies can generate these critical features of development.

NOTES AND REFERENCES

- 1 Actually, that last part was last week but give me a little poetic license here.
- 2 A recent literature has come to view the acceptance of failure as a key ingredient to generating persistent innovation. See Michael Schrage, "Innovation and Applied Failure", *Harvard Business Review*, Nov-Dec. 1989, p. 42.
- 3 Nathan Rosenberg has been one economist who has emphasised the importance of organisational diversity in fostering persistent innovation. He argues that a distinctive advantage of market economies is that they allow for economic experiments and, thus,

can search for productive opportunities over a wider domain of activities. Such an observation sits well with Saxenian's arguments. See N. Rosenberg, "Economic Experiments" in *Exploring the Black Box: Technology, Economics, and History*, Cambridge University Press, Cambridge, 1994, pp. 87-108.

- 4 Alfred Chandler is one person who argues that larger, vertically integrated firms are the desired organisational form in some contexts. Indeed, in 1990, he criticised SV firms for neglecting such lessons: "Instead of making the long-term investments to create organisational capabilities and then continuing to reinvest, they remained small or sold out, often to the Japanese. Repeatedly, groups of engineers left their companies to start new ones. Too many companies — both old and new — ignored the logic of industrial growth. Those few that did not — Texas Instruments, Motorola (both established well before World War II), and Intel — remain significant players, America's major hope (with IBM) of staving off the Japanese challenge." See A.D. Chandler, "The Enduring Logic of Industrial Success", *Harvard Business Review*, Mar-April 1990, p.130.
- 5 If the firms in Route 128 have not made such investments it is probably because the forces of agglomeration come from the availability of skilled labour and specialised intermediate inputs. A closer investigation of this is surely a potential avenue for future research.
- 6 For more of the role of "cultural beliefs" in economic growth see Avner Greif, "Cultural Beliefs and the Organisation of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies", *Journal of Political Economy*, forthcoming, 1994.

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Entrepreneurship, Management, and the Structure of Payoffs by William J. Baumol (The MIT Press, Cambridge, Mass., 1993) pp. xii + 312, US\$29.95, ISBN 0-262-02360-1.

A new book by this renowned and prolific economist is a very welcome event. In an age when mainstream economics has become narrowly technical and overly specialised, William Baumol is almost a throwback to an age when leading economists were widely informed about the world of business, routinely drew on a range of other academic disciplines, and wrote prose which was accessible to the non-economist reader.

This latest book explores a number of themes likely to be of interest to readers of this journal. Because of the varied subjects over which the author roams, it almost necessarily lacks a cohesive structure; indeed Baumol admits it is "somewhat episodic". Thus, with the exception of four related chapters on technology transfer, it is best viewed as a collection of essays, some of which are extensions of previously published journal articles.

One point which is central to Baumol's work is that entrepreneurship does not necessarily yield a net benefit for society. At times it can be non-productive, destructive, and even parasitical. A number of the early chapters focus on circumstances where entrepreneurs do not fulfil their conventional constructive and innovative role. In particular he suggests that the speculative excesses in the United States during the 1980s were essentially a manifestation of entrepreneurship. Hostile takeovers, leveraged buyouts funded by junk bonds, greenmail