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# Fuzzy Concepts, Scanty Evidence, Policy Distance: The Case for Rigour and Policy Relevance in Critical Regional Studies

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MARKUSEN A. (2003) Fuzzy concepts, scanty evidence, policy distance: the case for rigour and policy relevance in critical regional studies, *Reg. Studies* 37, 701–717. Regional analysis is increasingly populated by fuzzy concepts that lack clarity and are difficult to test or operationalize: flexible specialization, windows of opportunity, resurgent regions, world cities, cooperative competition. Many analyses rely on anecdote or singular case studies, while contrarian cases and more comprehensive and comparative inquiries are ignored. Methodology is often not discussed adequately. This trend has been accompanied by an increasing detachment from political and policy advocacy. In this paper, I define fuzzy concepts and relate their proliferation to an emphasis on process rather than institutions, agents and behaviour. To demonstrate my arguments, I review three highly acclaimed bodies of work – flexible specialization with its re-agglomeration thesis; world cities; and ‘cooperative competition’ in industrial districts à la Silicon Valley. The paper makes the case for adherence to social science norms of conceptual coherence, causal theory (with both behavioural and structural components) and subsection of theory to the rigours of evidence, where the latter may encompass qualitative and quantitative techniques. Greater commitment to entering the policy debate and to making results accessible and informative to policymakers, regional planners and political activists would substantially strengthen this body of research and its usefulness.

Regional concepts      Methodology      Regional policy      Agglomeration

MARKUSEN A. (2003) Des concepts confus, de maigres preuves, des politiques éloignées: les arguments en faveur de la rigueur et des politiques pertinentes dans les études régionales critiques, *Reg. Studies* 37, 701–717. De plus en plus l’analyse régionale est peuplée de concepts confus qui manquent de la clarté et qui s’avèrent difficiles à tester et à mettre en oeuvre: la spécialisation flexible, les nouvelles possibilités, les régions renaissantes, les grandes villes à l’échelle mondiale, la concurrence coopérative. Beaucoup des analyses reposent sur des études de cas anecdotiques ou exceptionnelles, tandis que l’on ne fait aucune attention ni aux études de cas opposées, ni aux enquêtes plus détaillées et comparatives. Souvent, la méthodologie n’est pas discutée convenablement. Cette tendance va de pair avec une séparation accrue du plaidoyer politique et de principe. Cet article cherche à définir des concepts confus et à rapporter leur prolifération à l’importance accordée au processus plutôt qu’aux institutions, aux agents ou au comportement. Afin de le démontrer, on fait la critique de trois faisceaux d’oeuvres qui reçoivent un excellent accueil – la spécialisation flexible, avec sa thèse à propos de la notion de réagglomération; les grandes villes à l’échelle mondiale; et la notion de ‘concurrence compétitive’ dans les districts industriels, à la manière de Silicon Valley. L’article prône en faveur de l’adhésion aux normes de la science sociale quant à la cohérence conceptuelle, à la théorie de la causalité (y compris des éléments de comportement et de structure) et à l’assujettissement de la théorie aux rigueurs des preuves qui puissent embrasser des techniques qualitatives

MARKUSEN A. (2003) Unklare Begriffe, dürftige Beweise, Grundsatzferne: Arguments für Strenge und Grundsatzrelevanz in kritischen Regionalstudien, *Reg. Studies* 37, 701–717. Regionalanalysen werden zunehmend von verschwommenen Begriffen unterwandert, denen es an Klarheit fehlt, und die man nur schwer testen oder zum Einsatz bringen kann: flexible Spezialisierungen, Gelegenheiten, wieder auflebende Regionen, Weltstädte, kooperativer Wettbewerb. Viele Analysen stützen sich auf Anekdoten oder Einzelfallstudien, während ihnen zuwider laufende Fälle sowie umfassendere und vergleichende Studien unbeachtet bleiben. Methodik wird oft nicht genügend diskutiert. Diese Tendenz ist von einem vermehrten Abstandnehmen von Politik und Befürwortung von Grundsatzbestrebungen begleitet worden. In diesem Aufsatz werden unklare Begriffe definiert, und ihr Umsichgreifen mit einer Betonung von Verfahren statt Institutionen, Ausführenden und Verhalten in Beziehung gesetzt. Zur Erläuterung der Argumente werden drei sehr positiv anerkannte Arbeiten: flexible Spezialisierung mit ihrer Ballungsthese, Weltstädte und kooperativer Wettbewerb in Industriegebieten vom Typ Silicon Valley besprechen. Der Aufsatz tritt für Beibehaltung der sozialwissenschaftlichen Normen der begrifflichen Kohärenz, der Kausaltheorie (einschließlich Verhaltens- und Strukturkomponenten) und dafür ein, Theorien strenger Beweisführung zu unterwerfen, wobei letztere qualitative und quantitative Techniken umfassen können. Stärkeres Engagement bei Teilnahme an Debatten zu Grundsatzfragen, sowie Anstrengungen, die

et quantitatives. Un engagement plus ferme à se lancer dans le débat sur la politique et à rendre les résultats plus accessibles et plus instructifs aux décideurs, aux aménageurs du territoire et aux activistes politiques renforcerait sensiblement ce faisceau de recherche et son utilité.

Concepts régionaux      Méthodologie  
Politique régionale      Agglomération

Ergebnisse für Parteiideologen, Regionalplaner und politischen Aktivisten zugänglich und informativ zu gestalten, würden diese Forderungen und ihren Wert erheblich erhöhen.

Regional Konzepte      Methodik      Regionalpolitik  
Ballung

Over the past 25 years, a great deal of new thought has emerged in regional studies, enriching our understanding of how regions work and why. Originating in the new left, both in Europe and the US, this body of work challenged orthodox approaches in geography, regional science and political economy. The challenge was intimately connected to an awakened sensitivity to imperialism, class, race and gender on both sides of the Atlantic and to active movements opposing specific national and local policies. Marxist and institutionalist approaches to social phenomena were resuscitated and synthesized into new interpretations of economic geographical forces. Cross-fertilization of ideas and method among economists, geographers, sociologists and planners greatly enriched the results. This body of scholarship does not constitute a paradigmatic shift, but it has considerably enriched geographical and regional economic knowledge.

The first 10 years of this upheaval hosted the publication of a number of stunning critiques of contemporary spatial development in both developed and developing countries. Examples include Harvey's *Social Justice and the City*, Cardoso and Faletto's *Dependency and Development in Latin America*, Massey and Meegan's *Anatomy of Job Loss* and Bluestone and Harrison's *The Deindustrialization of America*. These works shared three features: each strongly contested prevailing interpretations of urban and regional phenomena; each adroitly used empirical evidence to force home their contentions, often in pioneering fashion; and each advocated collective action to overcome the problems addressed by their analyses.

These authors, among others, spawned a generation of work addressed to the problems of uneven development and industrial restructuring. Yet since the mid-1980s, their work has been supplanted by a largely uncontested and increasingly obtuse dialogue, relying on what I will call 'fuzzy concepts' – characterizations lacking conceptual clarity and difficult to operationalize. In some cases, no attempt is made to offer evidence at all. Elsewhere, evidence marshalled is highly selective. Methodology is little discussed.

An increasing detachment from political and policy advocacy accompanies this state of written affairs. Absent an aspiration to shape society's future for the better, authors get by with characterizations in which agents disappear, causal connections need not be made

and processes rather than deliberative human acts are responsible for the built environment and the distribution of economic activity across space. A symptom of this is the increasing employment of the passive voice in regional writing.

It is not my intention in this paper to do more than speculate on the reasons why regional studies is slipping into this state of affairs – mostly, I seek to document and protest the trend. In what follows, I define 'fuzzy concepts' and relate their proliferation to an emphasis on process rather than institutions and behaviour. Then, with three different bodies of work, all among the best of the decade, I demonstrate the conceptual, empirical and policy dimensions of the problem in each. The cases include: (1) the spatial implications of flexible specialization, especially the hypothesis that vertical disintegration will lead to re-agglomeration; (2) the much heralded rise of 'world cities'; and (3) the characterization of new industrial spaces such as Silicon Valley as simultaneously co-operative and competitive. Although fuzzy concepts may be useful gropings toward the development of better ways of understanding the world, I conclude the paper with a call for greater conceptual clarity, increased rigour in the presentation of evidence and a more concerted effort to render work in regional studies relevant to the daily world of politics, policy and planning.

## FUZZY CONCEPTUALIZATION

It may seem an oxymoron to attempt to define 'fuzzy concept', but I will do so as simply as possible. A fuzzy concept is one which posits an entity, phenomenon or process which possesses two or more alternative meanings and thus cannot be reliably identified or applied by different readers or scholars. In literature framed by fuzzy concepts, researchers may believe they are addressing the same phenomena but may actually be targeting quite different ones. A simple question which evokes fuzziness of concept where it inheres is the following: 'How do I know it when I see it?' Because our research results are shared among a community of researchers and practitioners, it is important that concepts developed and used are understood in more or less the same way by all. An empirical test to determine whether a concept is fuzzy or not would

investigate the use of it by a sample of researchers to determine whether each comprehends and employs the concept in a similar fashion.

An example will help to illustrate the point. In a recent Ph.D. dissertation, *Learning to Industrialize*, Razavi contrasts four second tier cities in Iran and Brazil and concludes that some are 'learning regions' while others are not (RAZAVI, 1997). Along the way, his advisors pressed him to define a 'learning region'. Initially, he responded that a 'learning' region could be identified by its success in development. This is, of course, tautological. We insisted that he identify one or more characteristics of regions that constitute their learning capabilities and that his research show consistently that those regions which possess these capabilities – be they institutions, skills, organizations, key actors – are associated with specific measures of success. By asking the question over and over, 'how do we know it when we see it?', we encouraged him to pin down the concept of 'learning region' to a set of characteristics that could be unequivocally posited and would be understood in the same way by all readers. The result is a wonderful thesis with original conceptualization. It is also a thesis which meets the demands of sound academic research – someone else could replicate his field work and verify the validity of his conclusions. The thesis offers, in addition, important policy ideas for regional planners who wish to improve the economic performance and quality of life in their regions.<sup>1</sup>

An increasing emphasis on process, rather than structure, agency and performance, accompanies the proliferation of fuzzy concepts, as does a reliance on passive voice construction. Pick up a 1990s regional book – even the best – and in many you will find a preponderance of words which were once nouns or verbs transformed into adjectives, process verbs and then again into process nouns with 'ization' or even 'izationism' endings:

differ/different/difference/differentiate/differentiation  
globe/global/globalize/globalization  
problem/problematic/problematize/problematization  
appropriate/appropriation/appropriationism  
sustain/sustainable/sustainability.<sup>2</sup>

There is nothing grammatically incorrect about these rhetorical transformations. But the displacement of agents and actions by process nouns entails a shift away from the study of actors, bureaus and social groups, the structures within which they operate, their actions and outcomes, toward a discourse in which processes themselves become the causal agents.<sup>3</sup> Consider these lines from Peck's otherwise impressive book, *Work-Place* (1996):

The nature of local labor markets is shaped by both 'general' processes of labor segmentation and by 'specific' local structures of labor reproduction and institutionalization. Geographies of labor are formed at this intersection,

where flows of capital accumulation collide with the structures of community (p. 15).

In capitalist societies, the preparedness of workers to offer their labor on the labor market is largely secured by the systematic erosion of possibilities of subsistence outside the wage system (p. 27).

Consequently, regulatory dilemmas in the labor market, rooted in the social character of labor, trigger a complex institutional dialectic (p. 43).

Peck is unusual among authors in this discourse in that he manages to use strong verbs such as collide and trigger. But parsing these sentences and inverting passive phrases, we have unknown agents forming geographies; flows colliding with structures; erosion securing preparedness; and dilemmas triggering a dialectic. Much of this could be said more simply, and some of these statements are less than lucid – strictly speaking, capital accumulation does not flow. In recent economic geographic literature, sentences are sometimes so contorted that the writer loses sense of what the subject of the sentence is and makes grammatical mistakes.<sup>4</sup>

The fudging or suppression of agency and causality in fuzzy concepts and process-preoccupied writing is problematic, particularly for planners, policy makers and political activists. Often the use of process language obscures entirely the possibility of and responsibility for change in a given situation. Consider the final of the three Peck quotes above. The analysis is reduced to characterizing the process, with no clear attribution of power, responsibility or range of possible response on the part of actors – participants in the labour market (employers, unions, individual workers), politicians or state managers in various bureaus. Indeed, in Peck's first four, theoretical chapters, unions rarely are mentioned and then only in passing. Clark's masterful treatment of tensions between unions and communities, *Unions and Communities Under Siege* (1989), is a far more satisfying account of labour and place, because he shows how union governance structures, particularly elected leadership and the union 'local', as well as the state-circumscribed context in which they operate, enable and constrain labours' options.

Accompanying the bias towards process is a level of abstraction in much of recent geographical writing that particularly shortchanges the role of the state in shaping territorial development. LOVERING, 1998, in a compelling critique, demonstrates how the recent economic history of Wales has been rewritten with the help of what he calls 'woolly theory', excising the extremely important role of public sector spending and presuming a unified Welsh 'actor' pursuing endogenous development paths which are not, he suggests, in the interests of large portions of the population. In Storper's new book, *The Regional World* (1997), the state is absent from a conceptualization that sets out technologies, organizations (meaning mainly firms) and territories as

fundamental but intersecting categories. Abstraction of this sort is sometimes defended by referring to institutions and cultures as 'contingencies' and placing them outside the boundaries of the analysis (see the interchange between SCOTT, 1991, and LOVERING, 1990, 1991). But good theory must encompass both process and institutions, both structure and agency. If state activity, based on complex politics and inter-bureau competition, is central to the evolution of regions, it must be built into our theories.<sup>5</sup>

My point is not to discount the usefulness of notions of process, but simply to point out that processes often are not well-defined and, worse, are abstracted from actors and institutions in ways that impoverish the quality and impact of the resulting work. Process notions can be powerful, insightful and facilitate organizing for change. The original work of BLUESTONE and HARRISON, 1982, on 'deindustrialization' made clear the phenomenon they depicted – plant closings and relocations (actions) away from traditional industrial centres by large, multi-establishment firms (agents) in response to strong labour unions (more agents), strong local public sectors (state agents) and new opportunities for profitable production elsewhere, the latter in turn the result of industrial structures and political decisions made by yet other agents. Their analysis of the behaviour of these agents and of the structures within which they operate inspired a vigorous plant closing movement in the US which was modestly successful in mitigating some of the worst aspects of capital flight and contributed to successful opposition to 'fast track' US trade legislation in the late 1990s.

New concepts, as they emerge, may be fuzzy simply because they are in the state of development. It may be worth proposing them as a way of focusing attention on phenomena that are under appreciated.<sup>6</sup> They may help to stimulate debate and sharpen a body of work as a whole. Such concepts may mature and gain substance in the course of such a debate or shrivel up under the heat of scrutiny.<sup>7</sup> But they may also detract attention from more important problems and agendas. The researcher or scholar has an obligation to be clear in proposing and defining a new concept, to answer the question, 'how would I know it when I see it?'

Why else might concepts be fuzzy? They might simply be bad concepts. Or, they may be addressed to different audiences, meaning something distinctly different in each forum.<sup>8</sup> The fuzziness in this case could be accidental or it could be deliberate. Political organizers often look for umbrella concepts that can pull strange bedfellows together – 'sustainability' might be an example. Or, someone wishing to obscure a hegemonic or power relationship might choose to use a rhetoric of inclusion – 'market' is a case in point, and 'community' is a word which is sometimes used in this fashion (LYNCH and MARKUSEN, 1994). Such fuzziness may be useful for someone writing from a dissident or relatively powerless position as well. In

Dunlap's analysis of the writing difficulties of MIT and Berkeley graduate students from developing countries, she found that fear of political reprisal or rejection often led to obfuscation and elliptical conceptualization (DUNLAP, 1990).

It is not my intention here to engage in a debate on epistemology and the sociology of knowledge. The issues touched on tangentially above could be more satisfactorily debated with tools from social theory and philosophy. My point is to show the links between fuzzy concepts and theory, the wane of concern for evidence and an increasing distance between intellectual work and policy.

### THE SLIPPAGE IN STANDARDS OF EVIDENCE AND METHOD

Perhaps one reason why regional scholars have found it easier to promulgate fuzzy concepts is that the literature has become increasingly permissive about the quality of, and the necessity to, include evidence in published research. The term 'theorist' is often applied to those who deal mainly in abstractions and abjure empirical verification, rather than to those who take up knotty problems, hypothesize about their nature and causality, and marshal evidence in support of their views. It is common to hear scholars refer to a divide between the quantitative people and the theorists, as if those who use data for evidence have no theory and those who 'do' theory have no use for evidence.<sup>9</sup>

Evidence, broadly speaking, is fundamental to the credibility of contending theories of regional development, and yet our standards of evidence seem to have slipped dramatically in the past decade. Many published pieces would benefit from a map or a table of summary statistics setting the topic in context. Granted, researchers must contend with inadequate secondary data sources and time and financial constraints on data-generating original research. But excellent quantitative accounts are eminently possible in many crucial regional development and policy areas – I showcase several below. Furthermore, new quantitative regional comparative techniques, such as Isserman, Beaumont and Rephann's quasi-experimental methods (ISSERMAN and BEAUMONT, 1989; ISSERMAN and REPHANN, 1995), are breaking new ground. Qualitative techniques have also advanced significantly in regional studies, as judiciously chosen and interpreted case studies enrich our understanding of regional development.

Contemporary regionalists are now much more frequently writing narratives or case studies of particular regional development phenomena, borrowing techniques of deconstructionism, constructionism, ethnomethodology and narrative from the fine arts and philosophy. These are often provocative – take, for instance, Schoenberger's fascinating accounts of Lockheed and Xerox's spatial strategies in her new

book, *The Cultural Crisis of the Firm* (1997). However, authors of qualitative accounts often fail to make the case that the particular case study is representative or that the findings from it are generalizable. Schoenberger's two firm studies, for instance, suggest diametrically different outcomes from spatial separation of firm operations – functional in the case of Lockheed, dysfunctional in the case of Xerox. Her conclusion that Lockheed needed to segregate its missiles and space division spatially from its aircraft division to succeed prompts one to wonder why another successful participant in both markets, Boeing, apparently did not. Of course, statistical studies which claim representativeness are often also riddled with ambiguities of various kinds,<sup>10</sup> but these are generally more transparent and thus more likely to prompt written comment and critique.

Often the quality of case studies is hampered by narrowness or 'blinkers' imposed on the subject by the researcher or by unwarranted selectivity in choice of data or interviewees. Scott's early work on Orange County, for instance, focused on showcasing entrepreneurial electronics firms missed entirely the strong connections between them and the nearby Los Angeles military industrial complex and their continued deep dependence on government military contracts (SCOTT, 1986; MALECKI, 1987; MARKUSEN *et al.*, 1991). Schoenberger's powerful account of the struggle within Lockheed between the aircraft and the missile programme managers omits the parallel and antecedent struggle within the firm's dominant client, the Air Force, between the pro-pilot, pro-bomber advocates and those who saw unmanned ICBMs as the superior nuclear delivery platform (MARKUSEN *et al.*, 1991). Case studies are difficult for others to replicate, a time-honoured method of checking the quality of evidence, simply because they are so time-intensive and require on-site interviews. Below, I use the Silicon Valley case, where my colleagues have done field research complementary to Saxenian's, to illustrate some of these issues in case study research.

The connections between the proliferation of fuzzy concepts and devaluation of evidence in regional development scholarship are several. Ill-defined concepts are simply more difficult to demonstrate empirically. Alternatively, fuzziness could be attractive to some writers simply because it excuses them from doing the hard work of documentation and to others because it enables them to avoid politically difficult issues, the naming of names or pointing the finger.

Although I place a great deal of emphasis on empirical verification in what follows, I am not arguing that all concepts must be operationalized to be useful. New and valid concepts may be difficult to operationalize because we lack appropriate data or evidence. The concept itself may provoke the generation of new data as, for instance, the notions of aggregate demand and gross national product prompted the creation of

national income accounting systems in the 1930s, or the big bang theory of the creation of the universe evoked new empirical techniques which eventually supported its protagonists' remarkable contentions.

I stress the value of subjecting new concepts to empirical tests, by which I mean simply evidence of one sort or another, not necessarily quantitative, because it is often the best way of revealing inadequacies in conceptualization. Even designing such research without carrying it out may have a salutary effect. Having to commit oneself to stating where and when a concept applies and where it does not is often the easiest way to pare fuzzy concepts down to a sharp and clear profile. It may be sufficient to state where and how other researchers and readers could observe the phenomenon if and when we have adequate evidence.

### POLICY DISTANCE

Under-researched fuzzy concepts are more tolerable the less we expect them to guide action, whether by the state or groups in civil society. Overall, I would argue, there has been a retreat from engagement with regional policy since the late 1980s, either at the national or subnational level, on the part of regional scholars. The relative neglect of the state's role in regional development exacerbates the distance between theory, research and policy. Uneven regional development continues apace, and state policies contribute to it in some cases, ameliorate it in others, but current policies (and policy lapses) are less often the focus of analysis than they were in the 1970s and early 1980s.

In what follows, I argue that regional research should be policy-relevant and concerned not only with efficiency but also with normative goals loosely considered 'progressive': equity; democracy; human rights; environmentally benign development. These are my own prejudices – others may favour a different mix. Good science, indeed, can be put to reactionary purposes, as in weapons of mass destruction or celebration of markets in the face of abject poverty.<sup>11</sup> But whatever the normative posture, it should be stated. In general, normative statements appear to be increasingly suppressed or absent in recent regional writing, a symptom of policy distance.

### FLEXIBLE SPECIALIZATION AND AGGLOMERATION

Among the more highly acclaimed new concepts in economic geography is the notion of flexible specialization with its associated spatial tendency toward agglomeration. The contention in its purest form is that a new process, flexible specialization, is replacing Fordism, that it is characterized by the externalization of transactions and thus the disintegration of large firms and the rise of smaller, less specialized and locally networked firms, and that it creates a tendency toward

spatial re-agglomeration, counteracting the tendency towards dispersion noted in the product/profit cycle literature. It is mostly strongly articulated by STORPER and SCOTT, 1988:

Indeed, it now seems that a new, hegemonic model of industrialization, urbanization and regional development has been making its historical appearance in the US and Western Europe ... (p. 21)

Because of the tendency to externalization of the transactional structures of production, selected sets of producers with especially dense interlinkages have a tendency to agglomerate locationally ... (p. 26)

*Accordingly, the turn towards flexibility has been marked by a decisive re-agglomeration of production and the resurgence of the phenomenon of the industrial district. ... (emphasis in original, p. 27)*

The flexible specialization concept has other important facets, particularly regarding production relations inside the firm and between firms. But for regionalists, these spatial contentions have been very influential.

A rich and engaging literature debates various aspects of the flexible specialization connotation and its regional embodiment (see, for example, GERTLER, 1988; SAYER, 1989; AMIN and ROBINS, 1990; PARK and MARKUSEN, 1994). In general, much of this discussion is about the very notion of flexible specialization – what actually constitutes it and what causes it. Less attention has been paid to the actual empirical record, on either the pervasiveness of the phenomenon per se or its imputed spatial implications. The relative dearth of empirical evidence beyond case studies and anecdotes is due in part to the fuzziness of the concept itself. Nevertheless, several authors have tested various aspects of the theory. Remarkably, their findings, which cast considerable doubt on the more universalistic claims of the school, have been met with surprising indifference.

In what ways is the concept ‘flexible specialization’ fuzzy? It refers to a multi-faceted process possessing a specified set of features, including shop floor organization of production, skills and career ladders of employees, aspects of interfirm transactions and relationships, corporate structure, governance mechanisms and regulatory regimes. The process is hypothesized to have both demand and supply side determinants. On the demand side, consumers are hypothesized to be demanding greater variability and customization in products, while on the supply side, new technologies are supposed to permit greater flexibility, smaller production runs and thus lower economies of scale. Few accounts in this literature successfully ‘unpack’ these various dimensions, and thus it is hard to ascertain just which establishments, industries and firms might best be considered ‘flexibly specialized’. To some, it is production processes themselves which are seen as increasingly specialized and flexible while, to others, the notion applies to firms, while others conceptualize

it as applying to workers and yet others to regions as a whole. It means, therefore, different things to different researchers (HARRISON, 1994, pp. 129–30, distinguishes three different meanings for ‘flexibility’ alone).

For the most part, empirical work on the ‘flex spec’ thesis, especially in the US, has been confined to particular localities and/or to particular industries. An outstanding example is STORPER and CHRISTOPHERSON’S, 1987, study of the motion picture industry, which in many ways bears out the flexible specialization thesis. Storper and Christopherson, without making the case for why this industry might be considered a good prototype, conclude that:

The vertical disintegration that lies behind flexible specialization creates powerful agglomeration tendencies at the regional level. Flexible specialization itself leads to the recomposition of the industrial complex, through a new form of horizontal integration of production capacity, further strengthening external economies (p. 115)

But the movie industry is relatively unique in that it produces a custom product in a one-of-a-kind production process. It may thus be an outlier in the contemporary economy. Furthermore, Storper and Christopherson’s own data (Tables 4 and 5, pp. 110–11) show at best a weak and ambiguous tendency toward agglomeration on the part of both employment and establishments. Interestingly, this case belies the strong contention of STORPER and SCOTT, 1988, that re-agglomeration is most likely to take place in virgin locations, since Storper and Christopherson contend that it is in Los Angeles that the industry’s re-agglomeration is most apparent.

Two accounts are notable for their efforts to test the various causal links embedded in the ‘flex spec’ literature. LURIA, 1990, marshals evidence for the American economy as a whole and for the auto industry. On the demand side, examining the contention that products have become more highly differentiated over time, Luria finds that this may be true for apparel but not for a wide range of other industries, including food, chemicals, oil, steel, major gas and electrical appliances and computers. Although production runs are smaller in the auto industry, he finds that real product differentiation has actually declined. Luria offers an alternative demand side theory of growing product differentiation – that it is caused by a worsening income distribution – and offers plausible evidence in support of it.

On the supply side, Luria finds that the number of single-focus plants is actually on the rise in the auto industry and that these plants are more efficient than ‘flexible’, or multi-focus plants. He finds, furthermore, that batch production is not on the rise in auto assembly, and where found in supplier industries, it is associated with greater inefficiency. Luria concludes that union avoidance is the most pervasive motivation for outsourcing in the auto industry, more important than the externalization of transactions costs. Luria’s findings

predict that dispersion rather than re-agglomeration will accompany vertical disintegration.<sup>12</sup>

A second important account, especially for regionalists, is the work of FELDMAN, 1993, and FELDMAN and MCINTYRE, 1994, on the spatial dimensions of flexible production, particularly on the vertical disintegration and re-agglomeration hypotheses. They unbundle the notion of flexible specialization, not a 'monolithic concept', and contrast it to global Fordism and its spatial tendencies (1994, pp. 13, 42). In an aggregate analysis of American metropolitan areas from 1976 to 1984, FELDMAN, 1993, found that 'agglomeration in U.S. manufacturing decreased, and the decrease was the greatest in industries that became more vertically disintegrated and those with growing employment', strongly contradicting the flexible specialization thesis.

In supplemental nationwide industry case studies, carefully selected to capture the range of features associated with flexible specialization (an increase in smaller firms, a tendency toward vertical disintegration, high-tech in nature and relatively competitive),<sup>13</sup> FELDMAN and MCINTYRE, 1994, found that none of the industries unambiguously exhibits the spatial tendencies posited in flexible specialization theory. The aircraft industry, for instance, was found to have increased its employment dramatically over the period while average establishment size declined, as did the proportion of all firms serving national markets; nevertheless the industry has not re-agglomerated either in its original Connecticut Valley locale nor anywhere else. Instead, the industry has experienced a slow process of spatial diffusion, motivated by both lower labour costs and union avoidance, on the one hand, and by the desire to penetrate international markets (via offset agreements) on the other, outcomes which support the predictions of profit cycle theory (MARKUSEN, 1985). Feldman and McIntyre conclude that these case studies yield greater support for the global Fordist characterizations than for the flexible specialization thesis.

Recent work on Seattle, Colorado Springs, Silicon Valley and a group of fast growing cities in Brazil, Korea and Japan (MARKUSEN, 1996c; MARKUSEN *et al.*, 1999) suggests that flexible specialization is not pervasive, even among this set of relatively new, 'untainted' and highly competitive locales. At least four different spatial configurations are possible, only one of which is related to flexible specialization, and the latter is the least common of the four. Furthermore, non-local embeddedness – strong links between establishments and firms at a distance from one another – appears to be more important than local networks in many of the cities studied. Research on other agglomerations also casts doubt on the posited correspondence between vertical disintegration and re-agglomeration. In an intensive study of northeastern Ohio, Clarke and Holly, 1996, conclude: 'Thus, vertical

disintegration as a characterization of production cannot be said to dominate this territorial complex of firms in high technology sectors as it may in other regions' (p. 138).

The doubt that these studies cast on flexible specialization and its hypothesized agglomerative tendencies leads one to wonder why this body of work has been so influential, widely read and cited. Apart from its original, Third Italy version, associated with progressive politics in its native Italian context and from progressive efforts (including by Luria) to apply it to mature industrial regions like Detroit in the US, the odd thing about the American 'flex spec' is that it has largely been applied, misleadingly I would argue, to new industrial regions like Orange County, Los Angeles and Silicon Valley. Its policy content is discouraging – much of what is celebrated in Scott's 'new industrial spaces' implicitly treats mature industrial regions with heavily unionized workforces and good income distributions as if they are past history. Interestingly, the more highly profiled American 'flex spec' districts are all highly dependent on military R&D and procurement spending, heavily white and male at the top of their occupational hierarchies, characterized by dualized labour forces and staunchly non-union (Hollywood is an exception in this latter regard). Concentration on the more successful regions also diverts attention away from heightened interregional competition and devolution of responsibility for economic development and social welfare from national to subnational governments in ways that seem implicitly to accept if not applaud these trends (MARKUSEN *et al.*, 1999).

#### WORLD CITIES: IN A CLASS OF THEIR OWN?

The phrase 'world city' was first coined by Patrick Geddes in 1915 and resuscitated by Peter Hall (1966) as a device to set apart a select number of cities for special status in regional studies. The triumvirate of New York, London and Tokyo is grouped together and studied most frequently as members of this club. Gaining currency in the 1980s (e.g. FRIEDMANN and WOLFF, 1982), a number of intensive studies were done on such cities, also called global cities, prominent among them the work of SASSEN, 1989, 1991, 1994, and FAINSTEIN, 1990. The work continues. In the early 1990s, the Social Science Research Council funded a major study of New York, Tokyo and London, the papers for which will be published this coming year. Such comparative analyses of world cities stress the commonalities among them and tend to downplay the roles that national systems of cities and the condition of host national economies play in their success. The general theory underlying the rise of global cities, as formulated by Sassen, is that 'the territorial dispersion of economic activity associated with globalization creates a need for *expanded* (my emphasis) central



control and management if this dispersal is to occur along with continued economic concentration' (SASSEN, 1994, p. 24).

'World city' is at least a thrice-fuzzy concept. It can mean different things to different observers and authors (see also GOTTMAN, 1989). First, it may refer to the concentration of key roles in international transactions within certain cities, a notion that implies domination or at least leadership at the international scale. Second, it may refer to an external orientation on the part of cities, in that a greater share of its economic activity is directed to international rather than domestic markets. Third, it may refer to the ranking of a city in the global hierarchy of cities, encompassing cities which dominate large national economies and are the major *entrepôts* for interaction with external economies. Other conceptions are possible – operating as a gateway for immigrants, for instance. Some usages combine one or more of these, but rarely all – take, for example, the SASSEN, 1994, glossary definition of global cities: 'cities that are strategic sites in the global economy because of their concentration of command functions and high-level producer-service firms oriented to world markets; more generally, cities with high levels of internationalization in their economy and in their broader social structure' (p. 154).

As a result of this fuzziness, the labelling of cities as 'world' will vary depending upon the connotation intended. For instance, if it is a city's key role in international transactions, broadly construed, that matters, surely Washington DC counts as a world city, since it is the military hub of the international security system and the site of the World Bank, IMF and Federal Reserve System headquarters. Geneva might also be included in the group under such a definition, as might Silicon Valley as a nexus of world cybernetic innovation. If it is the external orientation of a city's economy that matters, cities like Hong Kong and Singapore would fit neatly into a club with New York. If it is dominance of a large national economy and control over its relations with the international community, cities such as Beijing, Mexico City and Moscow would surely belong. If it refers to an unusual incidence of international residents, San Antonio, San Francisco, Miami and Toronto would qualify. There may be yet other connotations as well – certain cities might be considered world cities because they play unique roles for far-flung constituents and/or are revered globally – Jerusalem, Rome, Mecca are examples.

Since the definition is fuzzy, attempts to operationalize 'world cities' often result in the marshalling of disparate kinds of data and evidence, much of which illuminates only one facet. If the point is to show that a city plays key roles in organizing the international economy, various indicators from the percentage of the world's stock market transactions to the number of

new patents to the size of the military forces commanded would be appropriate. If the exercise is aimed at demonstrating externalization, shares of city output or services traded internationally will suffice. If status is accorded on the basis of command over, and representation of, a considerable hinterland, absolute size and presence of primate city functions would be relevant.

Politically, the stylization of a city as a 'world city' is important because it often bears with it prescriptions for economic development that bear strongly on the prospects for its residents. Claims that a city belongs in the world city ranks might be used to support commitments of regional public expenditures and infrastructure in ways that would enhance that status, with differential consequences for different groups of residents. World city claims may also be used within national debates over infrastructure and revenue-sharing to justify skewed distributions, with adverse impacts on other regions.

Fuzzy thinking and inadequate data with problematic political results can be demonstrated by reflecting on the case of New York City.<sup>14</sup> Recent scholars of New York have chronicled the 'unhinging' of New York from its domestic hinterland and located its future and dynamism in its increasingly international orientation. DRENNAN, 1987, considers New York to be 'the major commercial and financial city in the world's largest economy', arguing that while it plays a smaller role in producing, shipping and selling goods, it plays a larger one in the world economy, particularly in finance and other business services. Although analysts like Sassen, Fainstein, Mollenkopf and Castells deplore various developments associated with this externalization, especially dualization and poverty, they are as a group quite sanguine about New York's continued pre-eminence.<sup>15</sup> Its future is widely considered to be ensured by its strength in producer services, both financial and non-financial, and by its heavy international orientation (MOLLENKOPF, 1985, p. 251; NOYELLE and PEACE, 1988; HALL, 1990; and DRENNAN, 1991, p. 20.) As one study puts it: 'Especially as its importance within the national economy recedes, the scope and character of New York's economy will increasingly be defined by the role it plays in the emerging global marketplace' (O'NEILL and MOSS, 1991, p. 9, emphasis in original). New York is paired with Tokyo, Paris and London by most of these authors (DRENNAN, 1987, pp. 26, 28; VOGEL, 1988; FAINSTEIN, 1990, pp. 120, 125; HALL, 1990, p. 13; SASSEN, 1991).

Two types of evidence are offered for the claim that New York is a world city, implicitly *the* American world city. The first type consists of evidence that New York's activities are more externally oriented than other American cities and are increasingly so over time (DRENNAN, 1985, pp. 35–4; MOLLENKOPF, 1985; WARF, 1987, pp. 3–12; SASSEN, 1991, chapter 4.) Others show that New York City's manufacturing output is twice as apt to be exported as consumed

nationally, and exports shipped through New York area ports continue to grow rapidly (NEW YORK STATE, 1990, p. 16; PORT AUTHORITY OF NEW YORK AND NEW JERSEY, 1991, p. 23.) Yet others note that foreign ownership of business and assets has increased dramatically (TELESIS, 1989, p. 9). A second type of evidence is aimed at demonstrating that New York is more specialized in, and hosts absolutely larger shares of, certain producer services than do other American cities (DRENNAN, 1992, p. 229, Table 11; SASSEN, 1991).

Such evidence supports the first two connotations of world city – that New York plays a key leadership role in at least some sectors, particularly finance, and that many of its activities are more internationally oriented than those of other American cities. The primacy of New York within the American hierarchy of cities and its pre-eminence as an American *entrepôt* is generally not addressed in these accounts, probably because they would be difficult to support.

Evidence supporting an alternative interpretation of New York – as one of a half dozen major specialized centres in a nation with a multi-polar and progressively flattening urban hierarchy – casts doubt on the validity of this third connotation of world city, at least as it applies to New York. New York is surprisingly under-represented in many producer services categories, and its position in many others has eroded over time *vis-à-vis* cities like Boston, Washington, Chicago, Los Angeles and San Francisco (BEYERS, 1989; MARKUSEN and GWIASDA, 1993). New York differs from London and Tokyo in having to compete within its national space with at least these five other cities, each of which serves as a ‘capital’ – educational, political, industrial, high tech, military industrial – in its own right.<sup>16</sup>

Two points can be made about the consequences of this competition. First, New York’s apparent specialization in services is in part a function of its relatively poor performance in manufacturing in recent decades. In 1960, New York region led the nation in total numbers of jobs and mirrored the nation’s economic structure – New York’s manufacturing share of all jobs exactly matched the national average of 31%. Subsequently, New York’s manufacturing jobs evaporated at a more rapid pace than the nation’s. Measures of concentration such as location quotients which show New York increasingly specialized in services are thus reflecting the absence of manufacturing as much as the presence of services. Furthermore, New York has not added service jobs as fast as have its competitors with faster rates of growth in manufacturing. The robust manufacturing growth regions of Los Angeles, San Francisco and Washington, DC, all experienced producer service job growth rates between 80% and 90%, while New York’s service sector jobs grew by only 34% (BEYERS, 1989, pp. 193–94).

Second, in quite a few large and important producer

service sectors, several other American cities were more specialized and increased their specialization over time at New York’s expense (MARKUSEN and GWIASDA, 1993). Although New York still leads in securities, banking, manufacturing administration, accounting and advertising, other American cities are more specialized, and growing faster, in other business services such as legal services, computing and data processing, management and public relations, research and development, and membership organizations. Evidence is particularly strong for the hypothesis that the capital city role attracts a disproportionately large contingent of producer services – Washington, DC, is more specialized than New York in a plurality of significant producer service functions.

A contemporary world city could be more modestly and unambiguously defined as one which is successfully competing for dominant status in at least one of the several important functions (finance, international market regulation, information management) of integrating the transnational capitalist economy in a neo-mercantilist world in which gains from trade and finance dominate over gains from production. In our own work, New York meets this definition because of its clear and relatively unchallenged dominance in banking and finance. It is the primary locus of the agents involved in these specific functions, as Sassen comprehensively shows. As profit has been increasingly generated by the international movement, rather than creation, of capital, technology, commodities and services over the two past decades, the agents of merchant and finance capital, collectively known as ‘Wall Street’ in the US, have also become politically ascendant in national and international policy making, especially in the free trade and deregulation debates.

But New York is not a world city in the fuzziest, more expansive sense employed in most accounts from the 1990s. It does not rank on a par with Tokyo and London, because the latter are the undisputed financial, cultural, political, educational, research and industrial capitals of their countries. New York can only claim to be the first of these – arguably, Los Angeles with its pre-eminence in TV and film, has become the nation’s (and the world’s) cultural capital.

The political and policy implications of this more modest and empirically grounded interpretation of New York’s global role are sobering for New York enthusiasts and constitute a critique of its globally-oriented economic development strategy. The domestic market is still very important to New York, and yet New York is losing market share to other domestic as well as international regions. A decades-long indifference to manufacturing decline, in both scholarship and policy, was unwarranted. New York City mayoral regimes, from Lindsay onward, did little to stop the outflow of manufacturing and port-related jobs and much to encourage the rapid growth of business and financial services (FAINSTEIN, 1990, pp. 129, 132).<sup>17</sup>

New York's relatively narrow specialization renders it vulnerable to slowdowns in the pace of globalization, such as that which began in 1998, and to reversals in the financial sector, as in the aftermath of 1987 and again as the century draws to a close. A more diversified economic development policy should be favoured over one preoccupied with finance and international relations. It should, as New York has belatedly been doing in the 1990s, seek to stabilize and retain manufacturing, and it should target not just export markets but the large domestic market in its backyard.

There is a deeper, more troubling policy issue associated with grandiose interpretations of New York's status and dynamism. If New York is seen principally as having a stake in the success of economic activities facilitating accelerated globalization, this suggests that national policies such as free trade, international financial mediation, a continued role for the US as global policeman, inflation control and deficit reduction are in New York's interests. From this vantage point, New York is assumed to have interests at odds with other American regions which may have a greater stake in managed trade, a slower rate of international economic integration, infrastructure investments and a Keynesian full employment policy. Yet the New York financial sector is heavily dependent on *domestic* savings and capital funnelled into the stock market and other financial instruments – an eroded domestic economy could rebound negatively on New York's economic success. And if the financial and business services sectors are privileged in either theory or practice, at either the regional or national levels, New York's blue-collar firms and workers will continue to face displacement.

### NETWORKING AND CO-OPERATIVE COMPETITION IN INDUSTRIAL DISTRICTS

A third example of fuzzy conceptualization is the emphasis on networks and co-operative competition in geographers' and planners' work on industrial districts. Contrasting industrial districts to those dominated by large firms or whose firms operate in atomistic markets, researchers attribute the relative success of the Third Italy, Baden Wurttemberg and Silicon Valley to strong, reciprocal social networks among large numbers of relatively small firms which facilitate innovation and collective management of crisis (e.g. COOKE and MORGAN, 1994; SAXENIAN, 1994). Firms in this extensive literature engage in 'co-operative competition' and are often characterized as having porous or 'fuzzy' boundaries.

The emphasis on networking among firms in this literature is welcome and addresses what GRANOVETTER, 1985, characterizes as the missing social relations operating at the level in between neo-classical economics' individual consumer and firm, on the one hand, and Marxist class and amalgamated capital on

the other. Nevertheless, in most regional accounts, networks are presented generically and extolled without examining the motivations of participants, mapping who might be included and excluded, analysing unequal power relationships among members or gauging the durability or fragility of relationships. A similar critique can be levelled against the notion of social capital – I have yet to read an account of it, including the pioneering PUTNAM, 1995; COLEMAN, 1988; and heavily mathematicized BECKER, 1996, versions, which distinguishes whether it is a stock or a flow concept or how it is produced and accumulated (since it is an analog to physical capital).

The companion notion of co-operative competition is a fuzzy and inherently non-operational concept because it connotes tension between two types of behaviour.<sup>18</sup> What types of behaviour, which actions, exactly, are competitive and which are co-operative? Co-operative behaviour may enhance the bottom line, but it may also result in one's competitors stealing a good idea or pilfering key employees away. This calculus must be present in every act of interchange between firms and employees within them. In the Silicon Valley case, for instance, two sets of researchers, sometimes quoting the same firms, paint entirely different pictures of inter-firm dynamics. SAXENIAN, 1994, depicts flows of personnel and information from one firm to another in a friendly, unmonitored atmosphere, benefiting all. FLORIDA and KENNEY, 1990, point to the high incidence of law suits as evidence that the boundaries of firms are vigilantly policed and that there are winners as well as losers from this process, as when one or the other co-operative partner moves more quickly on shared information. Both tendencies may be present, but the concept of co-operative competition does not help us to distinguish between them and leaves planners with little to go on.

Can firm boundaries be fuzzy, even in theory? Capitalist firms, whether large or small, operate in a highly regulated environment in which property rights, stock ownership, bank loans and other equity investments are very carefully watched and tended to. The boundaries of a firm are, ultimately, not at all fuzzy – they are written down in asset, cost and revenue statements that owners and managers, whether private or public, scrutinize carefully every quarter. If the bottom line is not positive for most quarters, or in the case of a start-up within a few years, firms will cease to exist. Firm survival rates may be low and personnel turnover high, but as organizations and institutions, firms are clearly bounded.

Because our theory is underdeveloped, the nature of firm interactions in various types of regions is largely an empirical question. Firms' interactions do matter, and network analysis has enriched economic regional studies. But at least three problems encumber empirical work on industrial districts. First, there has been remarkably little discussion about what makes for a

'good' network study. Most regional researchers relying on firm interviews do not write up their methodology or address issues of interview selectivity, informant veracity, interviewer neutrality and the generalizability of findings, despite lively debate on these issues in the recent economic geography literature (SCHOENBERGER, 1991; HEALEY and RAWLINSON, 1993; MARKUSEN, 1994). Second, because industrial district research is confined within the borders of the district, firm and establishment, ties to other firms and organizations, particularly the state, outside the region are inappropriately eliminated from the analysis. This may lead to the mistaken impression that a region's economic dynamism is endogenously driven. A number of papers have been written purporting to find networks and industrial districts where on closer examination, their existence is questionable.<sup>19</sup> Other researchers have documented the non-local embeddedness of establishments and firms in far-flung networks and the dominance of large firms in regional production systems (STORPER and HARRISON, 1991; MARTINELLI and SCHOENBERGER, 1991; HARRISON, 1994; PARK and MARKUSEN, 1994). Third, students of industrial networks often conflate their existence with regional economic success without acknowledging other forces at work in the regional economy. They do not carefully establish the links between individual informants, their organizational roles, the establishment, the firm, the industry and the region in making causal inferences (MARKUSEN, 1994).

To illustrate the difficulties of establishing empirically the role of networks and co-operative competition in industrial districts and the extent to which they account for regional prosperity, let us reflect on one of the very best accounts – SAXENIAN's, 1994, study of Silicon Valley. Saxenian presents Silicon Valley as 'a regional network-based system that promotes collective learning and flexible adjustment among specialist producers of a complex of related technologies' (p. 2). She characterizes activity in the Valley as an 'unusual mix of cooperation and competition' (p. 57); 'the functional boundaries within firms are porous in a network system, as are the boundaries between firms themselves and between firms and local institutions such as trade associations and universities' (p. 3). Saxenian's is a rich regional portrait in which strategic relationships are local and face-to-face, so that the region and its culture are central to industry performance. The success of the Silicon Valley district is counterposed to that of Route 128 near Boston, which is depicted as vertically-integrated, hierarchical, rigid, and too traditionally family-oriented to compete with the western upstart. Unlike their eastern counterparts, Silicon Valley engineers and technicians are committed to one another and to the region, not to companies or even industries. They are even, Saxenian suggests, less motivated by money than by the drive to innovate.

*Regional Advantage* is written as a narrative, with

examples and evidence woven into the text. Saxenian offers more documentation of her method than most authors of regional case studies who rely on interviews. In an appendix, she states the following:

The research for the book was ethnographic in nature, with the empirical material accumulated over the course of nearly a decade living in and observing the two regional economies. The core of the argument is built from more than 160 in-depth interviews with entrepreneurs, industry leaders, corporate executives, and representatives of local business associations, governmental organizations and universities in Silicon Valley and Route 128 (p. 209)

and lists the firms and positions of the individuals interviewed. Because her method is more transparent, it is paradoxically easier to raise questions about the comprehensiveness of the account. Several points may be made.

First, the interviews in *Regional Advantage* appear to be heavily concentrated within a subset of industrial sectors in the Valley. The electronics and computing sectors appear to be over-represented, with fewer proportionally in the missiles and space, communications equipment and instruments sectors. The former two sectors account for about 2/3 or 120,000 jobs in the high-tech manufacturing sectors (Saxenian's own data, p. 208). Some 60,000 additional jobs are concentrated in the latter three highly defence-dependent sectors; indeed, the Valley is more heavily specialized in missiles and space activity than in electronics as measured by location quotients (GRAY *et al.*, 1999). Furthermore, an undetermined share of the Valley's computing and electronics innovative activity (as opposed to sales), especially leading edge research, is oriented towards and underwritten by military missions. For decades, the federal government has awarded more than US\$5 billion annually in real terms in military and space prime contracts to Silicon Valley, the nation's premier defence electronics and avionics region.<sup>20</sup> Furthermore, there are good reasons to believe that, with the increasing significance of electronics, guidance, computing and software in the cost of any single weapons platform, the Valley receives a greater than proportional share of subcontracts from contractors elsewhere.

Second, not all important actors in the Valley are included in the study. Although Saxenian does an excellent job analysing Hewlett-Packard, other large firms and international firms do not receive their due (TEECE, 1992; HARRISON, 1994; GRAY *et al.*, 1999). Conspicuous for their absence, for instance, are the three largest defence contractors – Lockheed, FMC Corporation and Loral Western Division (formerly Ford Aerospace and now part of Lockheed/Martin) – as well as many medium-sized ones, including IDS, the successful defence electronics firm founded by former Secretary of Defense, William Perry. Lockheed is the single largest industrial employer in the Valley – with 16,000, it is twice the size of Sun Microsystems, and

the history of its location in the Valley and seminal role in the evolution of the Valley has been well told by SCHOENBERGER, 1997, and by Saxenian in her earlier work (1985). Lockheed and the other defence contractors are significant customers of the Valley's smaller firms, many of whom specialize in defence electronics. They also have considerable non-local ties to Washington and to other defence contractors and divisions of their own companies elsewhere – Lockheed, for instance, is currently headquartered in Bethesda, Maryland, a recent shift from Los Angeles. Also missing from this account are the many branch operations of foreign, especially Asian firms, acting as 'eyes and ears' for their home-based operations.

Third, it is not clear that Saxenian's sample captures the experience of losers as well as winners and of outmigrants as well as those committed to staying in the Valley. If the set of those interviewed was generated by a snowballing technique, where one firm mentions or recommends others, and/or by frequent mention in secondary press and other accounts, then firm success, membership in networks, degrees of co-operation and positive evaluation of such relationships are apt to be overstated. If the point is to showcase 'best practice', this may be appropriate, but *Regional Advantage* implies that this is prevalent Valley culture and experience. Similarly, and perhaps this is asking too much, no mention is made of those firms and individuals who have chosen to relocate outside of the Valley to places like Seattle and Colorado in what has been a marked outmigration over the past decade and where they continue to compete successfully in these same sectors despite leaving the agglomeration.

Finally, the causal link implied between the co-operatively competitive culture described (but not measured) in the book and the success of Silicon Valley as a regional economy is not thoroughly established. A number of very important and relatively unique attributes of the Valley are left out of the analysis. These include the Valley's embeddedness in the larger San Francisco regional agglomeration, with strong ties to the downtown San Francisco business services sector and, again, the stimulative role of defence spending with its annual infusion of billions in contracts and long term investment in human capital and technology.

Saxenian's study is an important, fascinating and accurate interpretation of a subset of sectors, firms and individuals in Silicon Valley. Activities in the firms and sectors may indeed be disproportionately responsible for Silicon Valley's success. I would like to stress that her account is among the very best-researched and documented in this genre. My point is that even research questions best approached with qualitative methods such as interviewing require rigour and transparency in methodology. My team's interviews with large American corporations, defence contractors and foreign operations of Korean firms in the Valley suggest a quite guarded attitude toward other firms and an

absence of 'fuzzy boundaries'. We also found substantial linkages external to the region, both up and down stream, counterbalancing local connectedness and questioning the extent of endogeneity in the region's growth. In our view, it is not possible to conclude that the success of the Valley is due principally to locally embedded co-operative competition and not also to extraordinarily valuable federal defence contracts, connections with other actors (such as Microsoft) outside the region, and the proximity and dynamism of the neighbouring San Francisco business services sector. Relative causality of each of these factors remains to be demonstrated.

A nuanced interpretation of Silicon Valley is politically important. The Valley is increasingly viewed as an icon of success in the increasingly global economy. It has been widely studied by economic development planners in many countries and is often cited as an example of what regions can do to distinguish themselves in a world of heightened spatial competition and of eroding regional policy.<sup>21</sup> Accolades for Silicon Valley are common among those advocating decentralization of responsibility for economic development from national governments to localities. To the extent that Silicon Valley's culture is credited with its success, then implicitly, as in the culture of poverty literature, other regions' relative poverty of culture must explain their relatively poor performance.

Yet many localities in the US and elsewhere have attempted to incubate high-tech entrepreneurs or replicate the networks heralded in the Valley, often failing. Why? Two points are important. First, it is likely that a new complex of industries – electronics and computing in this case – will take root in one or a few centres in early stages and remain clustered as long as innovation continues at a rapid pace (MARKUSEN, 1985). That complex will take root somewhere, but it does not follow that other regions can replicate the culture and expect to reap similar returns, because an industry may be able to support only a few such centres of innovation.<sup>22</sup> Second, if continued large Pentagon commitments to technology-intensive weapons play an ongoing role in the Valley's success (military R&D spending has been constant in real terms since the end of the Cold War and has increased in the defence electronics sector in which the Valley specializes), then would-be high-tech regions might design their strategies differently, targeting federal R&D money. Since defence R&D spending is slated for a real decline presently, it might be preferable to target other categories, especially the growing National Institutes of Health budget.

## CONCLUSION

In regional studies, fuzzy concepts may have proliferated because it is more difficult to see clearly what a progressive spatial strategy might be under capitalism

and perhaps also because it is easier than thinking clearly and causally. In my own view, the emphasis on process, while a welcome new dimension, has been overdone and tends to obfuscate agency and responsibility. If the focus is on processes of change over time, the implication is that actors, even powerful ones, are caught up in such processes and have little control over shaping their own or collective destinies. American financial and industrial elites, however, are actively engaged in fashioning the new world order through their dominance in financial, economic, trade and foreign policy. I believe, however, that it is principally the recession of political movements and the dilemmas of achieving equity and stability in a world dominated by American financial and military elites, with their attendant ideologies, that make the intellectual project so difficult.

Even given this political reality, it is hard to understand why there is so little good empirical work beyond anecdotes or case studies. The latter are often published without reflection on choice, representation or generalizability. Empirical work can be laborious, and secondary data analysis is often more time-consuming and less enjoyable than interviewing. Most American case studies appear to have been done by researchers on industries, firms and establishments in their own backyard. While understandable given resource constraints, such 'proximity' research may constitute a form of provincial boosterism, conscious or not – most case studies of southern California, Silicon Valley, and New York are suspect in this regard. The policy impact of these studies, especially for regions elsewhere and at the national and international level, will be limited if this is the case.

Overall, the political implications of much of the literature discussed here are sobering. By and large, the studies profiled in the three bodies of work offer complimentary and optimistic accounts of the ability of managers and entrepreneurs on Wall Street, in high-tech electronics and computing firms, in the movie and multi-media industries and in small businesses generally to guarantee the future growth and competitiveness of their host regions. Yet the places, industries and enterprises celebrated include those with a low incidence of unionization (Hollywood, again, excepted), relatively polarized occupational structures, hectic and non-community oriented work lives, chiefly white male hierarchies, and relatively reactionary organizational positions on issues such as universal health care, social security, privatization of education, devolution and funding for community development and other social programmes.

Regional studies is in need of a soul-searching about the quality of its theorizing, the rigour of its research methods and the policy and political implications of its work. All three are connected. Insulation from policy pressures invites fuzzier concepts. Fuzzy concepts make the job of coming up with evidence much more

difficult. Poverty of evidence results in toleration of fuzzy concepts and misguided policy. The work of authors reviewed here is welcome in scale and ambition, counterpoised against the narrowly empiricist exercises and overly formalistic models which have dominated regional science. I hope that this summary of a selective set of highly regarded works will help to prompt a lively conversation. Particularly in the preparation of students who will be the future teachers and researchers, we must ensure that we are working with powerful, plainly stated theories which can be operationalized and which offer clear guidance for those with the responsibility to shape the future of cities and regions. We owe our practitioner community the same.

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## NOTES

1. I became interested in fuzzy concepts when I began noticing that graduate students were increasingly mimicking what they read, particularly in the new geography literature, writing lengthy treatises with new fuzzy concepts embedded in long sentences in the passive voice. Such writing alienates practitioners and lay readers. Furthermore, it is unnecessary. Paraphrasing Robert Musil in his novel *The Man Without Qualities* (1953), any time there is something truly new and important to say it can be said in a very simple and succinct way. Sociologist Howard Becker makes the case eloquently in his *Writing for the Social Sciences* (1986), and historian Patty Nelson Limerick echoes it in her 'Dancing with Professors' in the *New York Times Book Review* (1993). Of course, my students, as did Becker's, complain that it may be all right for established professors to write simply but that making one's name requires pretentious presentation. I do not believe this to be true. Furthermore, it is unfair to graduate students not to demand rigour and clarity.
2. Sustainability, noted Michael Teitz at a recent ACSP discussion of this article, is the ultimate fuzzy concept.
3. WHATMORE, 1994, also calls for increased debate about social agency, more detailed empirical work and political relevance.
4. Consider for instance this summary sentence introducing a paragraph in COOKE and MORGAN, 1994, p. 96: 'As an indicator of the pressure to respond to competition by moving production into the supplier base rather than producing in-house, Fig. 5.1 and Table 5.3 are instructive'. The (singular) noun in the first phrase is supposed to refer to the (plural) subjects of the sentence, and strictly speaking, tables and figures cannot be indicators.

5. See, for example, the acknowledgement of state structures and actions in our analysis of the formation of American new industrial districts in MARKUSEN *et al.*, 1991, and MARKUSEN, 1991.
6. I am indebted to Nancy Ettlinger for raising this possibility with me.
7. Consider the extraordinary success of the concept 'paradigm' as developed by Thomas Kuhn in his work on scientific revolutions (1962). Although stimulating a great deal of debate and furthering our understanding of fundamental shifts in scientific outlook, Kuhn himself used the word 'paradigm' in at least 20 different ways (WEINBERG, 1998), inviting the progressive appropriation of the word for such minor shifts as to render the term virtually meaningless.
8. I am grateful to Najwa Makhoul for pressing me to make these distinctions.
9. Roger Hayter suggests that the disdain for empirical work in the tradition of verification in much recent geographical writing may be because evidence is seen simply as something convenient to support an established position.
10. I am indebted to Roger Hayter for this point.
11. I am grateful to Rachel Weber for this point.
12. Despite Luria's important findings for autos, a significant, growing and income-elastic industry, little attention has been paid to them in the geographic literature. STORPER, 1997, for instance, seems not to have engaged Luria on his work, citing only the pre-publication version of his paper, not the revised version published in 1990.
13. Elsewhere in the literature, case studies seem to have been chosen without careful consideration of representativeness, and perhaps because the industry was at hand.
14. The following discussion draws upon MARKUSEN and GWIASDA, 1993.
15. Much of what Fainstein and Sassen focus on are the similarities among London, New York and, in Sassen's case, Tokyo, in the internal structure of these finance-dominated cities and their common tendencies towards dualization and inner city redevelopment, not addressed here. However, their contention of dualization is questioned by Drennan and others, who have shown in cross-sectional studies of cities that those with higher producer services specializations also have relatively better income distributions, show improvement in those distributions over time, and have posted a decline in the number of and size of populations in ghetto Census tracts (JARGOWSKY, 1994; DRENNAN *et al.*, 1996). FAINSTEIN, 1998, offers a more nuanced view of contradictory evidence for dualization.
16. SOJA, 1991, compares New York and Los Angeles. While he characterizes them differently than do Markusen and Gwiasda, his work also demonstrates the significance of within-country comparisons.
17. New York, in 1962, handled 61% of all cargo value coming in and out of the US, but by 1987, its share had dropped to 40%. In contrast, the west coast ports increased their share from 13% to 46% in the same period (CAMPBELL, 1992, p. 14). New York's port never recovered from containerization and jet travel; jobs on the docks and railroads fell from 100,000 in 1958 to 22,000 in 1983 (DRENNAN, 1985, p. 89)
18. I have not been able to identify the origins of the phrase 'co-operative competition'. HARRISON, 1994, pp. 88, 111, uses it in his chapters synthesizing the literature on the Italian industrial districts and Silicon Valley.
19. SCOTT, 1988, for instance, identifies Colorado Springs as a flexibly specialized industrial district, but work by MARKUSEN *et al.*, 1991, and MARKUSEN and GRAY, 1999, find no evidence of this before the mid 1990s and then only among new, mass-based Christian organizations. In another example. Willoughby, 1993a, 1993b, finds a networked biotechnology district on the East Coast, while Gray, 1998, finds very little networking among biotech firms either there or elsewhere in the US.
20. The large and ongoing role of military demand and R&D in the Valley is well-documented elsewhere (YUDKEN and SIMONS, 1989; MARKUSEN and YUDKEN, 1992; GRAY, 1998) and it belies the overwhelmingly civilian orientation conveyed by Saxenian, who has written seminal accounts of the early role of defence spending but writes as if this is an historical and not contemporary phenomenon.
21. See, for instance, the debate between PORTER, 1996, and MARKUSEN, 1996a, 1996b. Saxenian's policy discussion focuses on how the Valley might shore up its regional advantages by creating more co-ordinated governance structures, *à la* the Third Italy.
22. For a fuller discussion of the economic development implications, see HARRISON, 1994.

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