

Alpha Clusters

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I would like to thank Guy Poirier and Shauna Brail for their helpful comments in the drafting of this paper.

The analysis and views expressed in this paper are those of the author and are not necessarily those of the Government of Ontario

Introduction

There has been a growing recognition that clusters are important for economic development. Clusters can pay high wages not only because there are productive advantages inherent in proximate relationships but also because they are able to produce innovative products and services that command a premium price. This paper argues that there is a set of clusters in which innovation happens in a different way than it does in the much-studied technology clusters. These are the ‘alpha clusters’. They are referred to as alpha clusters because they exhibit among the most pronounced cluster-specific traits and because they tend to gravitate to the largest cities of developed countries.

This paper looks at some of the characteristics of alpha clusters such as their degree of spatial concentration and their relative wages. It assesses how Canadian metropolitan areas compare to leading North American alpha cluster centres. It concludes by addressing how policy makers can look at the special needs of alpha clusters.

Innovation, Clusters and the Economy

A primary emphasis of economic development strategy in Canada’s is to maximize our ability to develop innovative products and services. Making innovation a priority is increasingly seen both as important to economic growth and as the way highly industrialized nations can best position themselves among the growing array of market-oriented economies. Like other countries with a well-developed infrastructure, a well-educated workforce, and a strong research capacity we are determined to build on our assets to secure a place among the world’s most innovative regions.

Fostering innovation, though, is not a simple task. Research has shown that innovation is complex and subtle process. There is a fair amount of agreement that innovation results from a dynamic interaction among people, often from a variety of different institutions such as firms, universities, and government agencies.¹ But the growth of knowledge occurs spontaneously and unpredictably out of these interpersonal and sometimes informal exchanges. Much of the conceptual knowledge gained is not recorded or even recordable and therefore is available only to those intimately involved in its development. The ever-changing environment in which people work can also have an important impact on their ability to innovate. Success itself can breed rigidity as innovative new ideas are rejected in favour of methods and concepts that have brought success in the past.

Given the social nature of learning and innovation it is fairly well accepted that these processes, as David Wolfe states, work best when the partners involved are close enough to one another to allow frequent interaction and the easy, effective exchange of information.² This helps explain Michael Porter's observation that some highly localized regions have an inordinate amount of success in some fields.³ The success of these 'clusters' is often based at least in part on their ability to innovate, which is supported by relationships among the closely located members of the cluster and the specialized environment in which they work.

¹ Statistics Canada Innovation Analysis Bulletin, Volume 6 #1, March 2004: *The many guises of innovation: What we have learnt and where we are heading.*

² *Social Capital and Cluster Development in Learning Regions*, David A. Wolfe, 2000. Paper presented at the Innovation Systems Research Network Annual Conference in Montréal 2000 and to the XVIII World Congress of the International Political Science Association in Québec City 2000

³ For Michael Porter's work on clusters and cluster development see www.isc.hbs.edu/econ-clusters.htm

Technology clusters like Silicon Valley's information and communications technology (ICT) cluster have received much of the attention both in the regional innovation literature and in the realm of cluster-based public policy. Research initiated by Richard Florida suggests that the ability to attract creative people in arts and culture fields provides distinct advantages to regions in generating innovations, growing and attracting high-technology industries, and spurring economic growth.⁴ But this work focuses more on the importance of these industries for implying the existence of a favourable environment for innovation and for helping to create such an environment than on the intrinsic economic potential of arts and culture industries themselves. However, the list below, which includes several cultural industries, others with a highly artistic element like fashion and advertising, as well as investment, represents perhaps some of the best examples of innovative clusters to be found anywhere in the world.

- | Alpha Clusters | |
|--|---|
| <ul style="list-style-type: none">• Financial investment• Advertising<ul style="list-style-type: none">○ Advertising agencies○ Public relations• Media<ul style="list-style-type: none">○ Periodical and book publishing○ Television | <ul style="list-style-type: none">• Fashion<ul style="list-style-type: none">○ Clothing○ Jewellery○ Cosmetics• Motion pictures• Sound recording• Performing arts/artists<ul style="list-style-type: none">○ Theatre and dance○ Artists, writers |

⁴ *Competing on Creativity: Placing Ontario's Cities in North American Context*. A report prepared for the Ontario Ministry of Enterprise, Opportunity and Innovation and the Institute for Competitiveness and Prosperity, Meric S. Gertler, Richard Florida, Gary Gates and Tara Vinodrai, 2002.

This list was constructed in order to have a group of industries upon which comparative analysis could be performed. It may be felt that some industries should be added or deleted. The data suggests, though, that these industries do have some important characteristics in common.

What Are Alpha Clusters?

One common underlying characteristic among the list of alpha cluster industries is that product life cycles tend to be extremely short, or, from another perspective, there is an extremely rapid rate of new product introduction. For example, an investment professional's product is the advice he or she gives to clients, but this advice can become obsolete almost immediately as the environment changes and new opportunities arise. An advertising campaign may have a lifespan of only several weeks. New television broadcasting and print media is generally produced daily or weekly. New products by firms in motion pictures and sound recording are offered at least every few weeks. In fashion and performing arts products commonly change with the seasons.

In discussing cultural industries Meric Gertler states, "competitive success rests on originality, distinctiveness, and the creativity and imagination of producers"⁵. This could equally be said of any industry characterized by rapid innovation. Product value in such industries is largely determined by uniqueness, that is, distinctiveness both from competitors' products and from one's own recent products. A prime investment opportunity, for example, is one nobody else yet knows about but it can become obsolete

⁵ *Urban Economy and Society in Canada: Flows of People, Capital and Ideas*, Meric Gertler, December 2001. Paper presented at the Ontario Network on the Regional Innovation System Fall Meeting, London, Ontario.

very rapidly as it becomes common knowledge at which point a new opportunity must be identified.

While it is true that any industry requiring the near constant introduction of unique new products may legitimately be referred to as a ‘creative’ industry, the word creative is primarily used in connection with cultural industries. This paper, therefore, often refers to these as ‘alpha cluster’ industries. The rapid pace of innovation in alpha cluster industries help give rise to a unique set of characteristics. These include a remarkable degree of spatial concentration (particularly in so-called ‘alpha’ cities such as New York and London⁶) and a tendency for leading alpha clusters to support high local wages over a long period of time.

The following table lists the industries from the North American Industry Classification System that are used in this paper to represent alpha clusters:

Industry Aggregations with North American Industry Classification System Code	
Investment	
5231	Securities and Commodity Contracts Intermediation and Brokerage
523210	Securities and Commodity Exchanges
5239	Other Financial Investment Activities
Advertising	
541810	Advertising Agencies
541820	Public Relations Services
Media	
511120	Periodical Publishers
511130	Book Publishers
513120	Television Broadcasting
513210	Pay and Specialty Television
Fashion	
31511	Hosiery and Sock Mills
31519	Other Clothing Knitting Mills
3152	Cut and Sew Clothing Manufacturing
31599	Clothing Accessories and Other Clothing Manufacturing
33991	Jewellery and Silverware Manufacturing
325620	Toilet Preparation Manufacturing
Motion Pictures	
512110	Motion Picture and Video Production
512120	Motion Picture and Video Distribution
51219	Post-Production and Other Motion Picture and Video Industries
Sound Recording	
512210	Record Production
512220	Integrated Record Production/Distribution
512230	Music Publishers
512240	Sound Recording Studios
512290	Other Sound Recording Industries
Performing Arts/Artists	
71111	Theatre Companies and Dinner Theatres
711120	Dance Companies
711130	Musical Groups and Artists
711190	Other Performing Arts Companies
711510	Independent Artists, Writers and Performers

⁶ See *A Roster of World Cities*, J.V. Beaverstock, R.G. Smith, and P.J. Taylor www.lboro.ac.uk/gawc/rb/rb5.html.

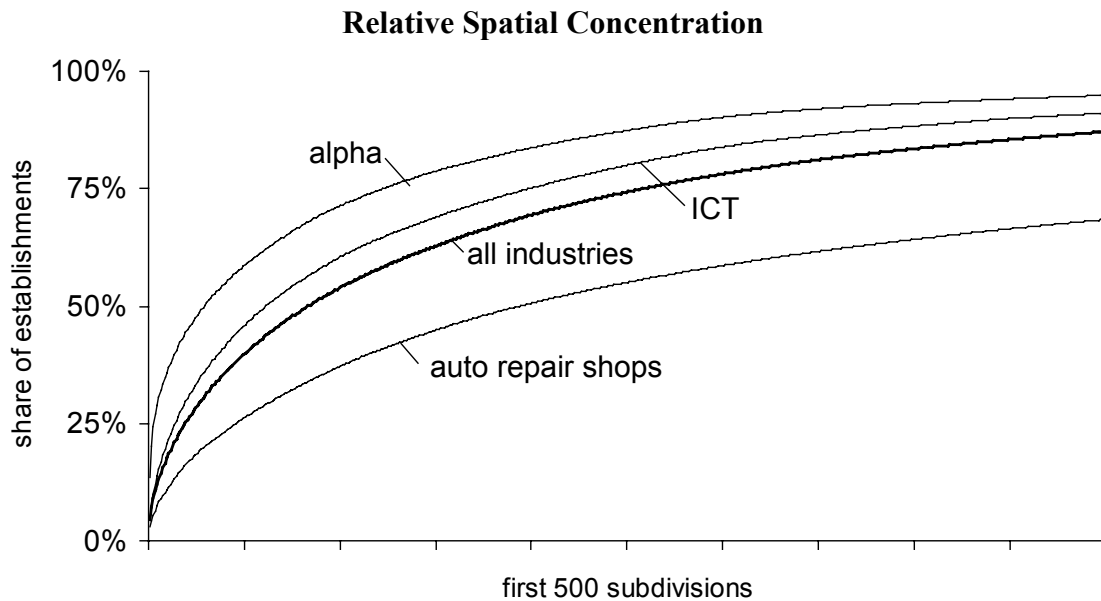
Alpha Cluster Characteristics: Spatial Concentration and High Wages

A relationship between proximity and innovation suggests that the more innovation-intensive an industry the more it will tend to be spatially concentrated because people must be part of a cluster to learn about the latest information and trends, to see the work of others, and to incorporate these ideas into their own products and services. The chart below uses counts of North American business establishments by industry to measure relative spatial concentration.⁷ This data is available at the county level in the United States and the comparable census subdivision level in Canada. There are more than 7,500 of these geographic subdivisions in the U.S. and Canada combined.

The subdivisions were ranked in descending order for each industry based on the proportion of the industry's establishments they contain. When these proportions were averaged across industries it was found, for example, that the first 30 subdivisions account for about 31% of establishments in the 'average' industry. For auto repair shops, a more "evenly spread" industry, the figure is about 20%. In ICT⁸ the first 30 subdivisions account for on average just over 36% of establishments while for alpha cluster industries the proportion is more than 50%. The chart illustrates the results for the first 500 subdivisions, with a more steeply rising curve suggesting a greater degree of spatial concentration.

⁷ United States data is from County Business Patterns produced by the Census Bureau www.census.gov/epcd/cbp/view/cbpview.html . Canadian data is from Canadian Business Patterns produced by Statistics Canada www.statcan.ca/english/IPS/Data/61F0040XCB.htm .

⁸ The ICT sector is defined according to Statistics Canada <http://www.statcan.ca/english/Subjects/Standard/spec-aggreg/ict-1997/ict97-menu.htm> except that wholesale industries are not included since the definition of wholesale industries in Canada and the United States is different in the North American Industry Classification System 1997 version.



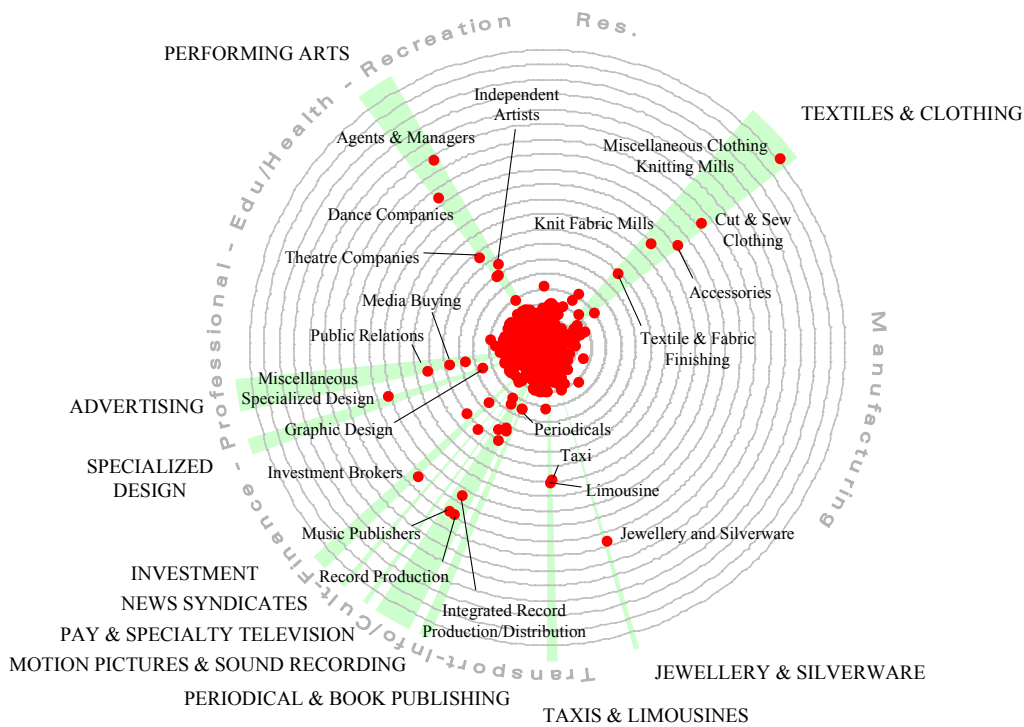
The next chart illustrates at least one of the places where these alpha cluster industries are concentrated, namely New York. This chart uses the same data as the previous chart, that is, business establishment counts by industry for North America (Canada and the United States)⁹. Each of the dots on this chart represents a different industry. The New York Primary Metropolitan Statistical Area accounts for approximately 3% of all North American business establishments.¹⁰ For some industries New York's share is much higher. This chart measures how much higher with each ring representing 1%. For example, cut and sew clothing manufacturing is located just beyond the 13th ring meaning New York accounts for more than 16% of North American establishments in this industry (more than 13 percentage points higher than their 3% average)¹¹.

⁹ Data for this chart is from 1999.

¹⁰ Non-employer businesses and those industries for which data is not provided by the U.S. Census Bureau's County Business Patterns are excluded from this calculation.

¹¹ The result of this calculation, in this case 13.29%, is referred to in this paper as a location share differential.

Industries Highly Concentrated in New York PMSA



Industries in this chart are arranged clockwise from the top according to their order in the North American Industry Classification System. The groups highlighted in green are suggestive of New York's more significant clusters. Certain other cities around the world share this rather distinctive industry structure. These tend to be the largest cities in the developed world such as Tokyo, Paris, and London. There is a remarkable similarity between these clusters and those identified in a report for the U.K. Department of Trade and Industry as the most established and significant clusters in London.¹² In both cases, almost without exception, they are the alpha clusters.

¹² *Business Clusters in the UK – A First Assessment, Department of Trade and Industry, www.dti.gov.uk/clusters/map/. This study identifies the following as deep clusters in London and as being*

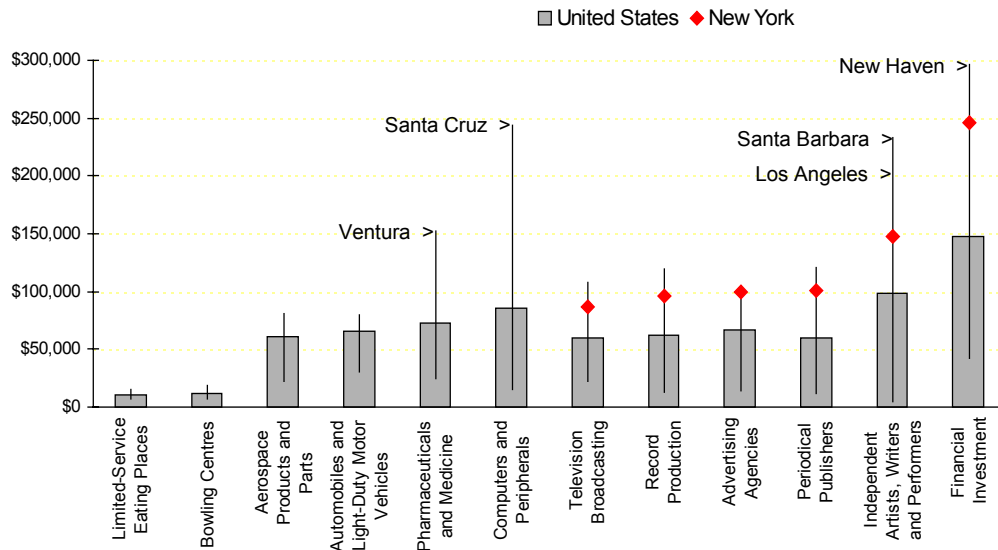
This U.K. study also demonstrates the very high degree of spatial concentration in London of alpha clusters. In investment the study notes, “To illustrate London’s UK dominance, it has over 50 per cent of UK employment in management of financial markets, venture capital, security broking and trading, fund management and bank HQs.” The other alpha cluster industries are included in what the study refers to as ‘creative’ industries, and it states, “For most of the creative industries, any regional presence must be considered embryonic. For one industry in particular (music), the dominant role of London is so extreme that the industry really cannot be considered to exist anywhere else.”

Along with spatial concentration, another important attribute of clusters is that there can be a very large difference in wages depending on whether one is inside or outside a leading cluster. Indeed, relatively high wages are largely the reason why the cluster concept is of interest to economic developers. But the degree to which this is the case in innovation-intensive industries can be quite dramatic. While alpha cluster industries tend not to be considered “high-tech” they can be, as New York demonstrates, very high-income. In the chart below the grey bars show the average annual pay in the United States in different industries. The vertical line shows the range of average annual pay among U.S. metropolitan areas.¹³

either established or mature and having international significance: financial services; business services; advertising; publishing; television, film & radio; clothing; jewellery; music industry; travel, entertainment & tourism; and antique dealing/exporting.

¹³ Data is from the U.S. Bureau of Labour Statistics for 2001 www.bls.gov/cew/.

Average Annual Pay



Data Source: U.S. Bureau of Labor Statistics, Census of Employment and Wages

The average annual pay in limited-service eating establishments, like fast food restaurants, and in bowling centres is relatively low and the range among metropolitan areas is small. This indicates that pay in these industries tends to be low no matter where they are located. The next two bars show that pay in aerospace and automotive assembly is relatively high no matter where they are located. The lowest average pay in these two industries is higher than the highest average pay in the previous two. A relevant economic development strategy in response to this phenomenon, one that has long been practised, is to try to have within one's jurisdiction relatively high paying industries like aerospace and automotives.

Pharmaceuticals and computers serve as examples of “high-tech” industries, those where there is currently a relatively rapid pace of technological innovation. There is a very wide range of pay in these industries. Ventura, at the top of the income range in pharmaceuticals and medicine manufacturing, is a leading biotechnology centre where companies like Amgen and the Bioscience Division of Baxter Healthcare are located. Similarly, Santa Cruz forms part of Silicon Valley, probably the leading centre for ICT innovation. Average annual pay in Santa Cruz in computer and peripheral manufacturing was close to a quarter of a million dollars in 2001. On the other hand, at the low end of the scale, one metropolitan area had an average pay in this industry of less than \$16,000. Simply having employment in this industry does not guarantee high incomes but being a leading innovator can be very lucrative. A relevant strategy here that is currently being widely pursued is to try to have an innovative cluster in “high-tech” industries.

Some industries may not seem particularly attractive from an economic development perspective because their average pay is not among the highest. But in New York (indicated with red markers) the average pay in television broadcasting is higher than the national average for aerospace or automotives or pharmaceuticals or computers (and higher than the highest paying metropolitan area for either aerospace or automotives¹⁴). The same is true for other industries like record production, advertising, and periodical publishing. The average annual pay for artists, writers and performers varies immensely, with the low even lower than the lows for limited-service eating establishments and bowling centres, but the average is quite high in New York and it’s even higher in Los

¹⁴ Note that the Bureau of Labor Statistics may have suppressed data for some metropolitan areas.

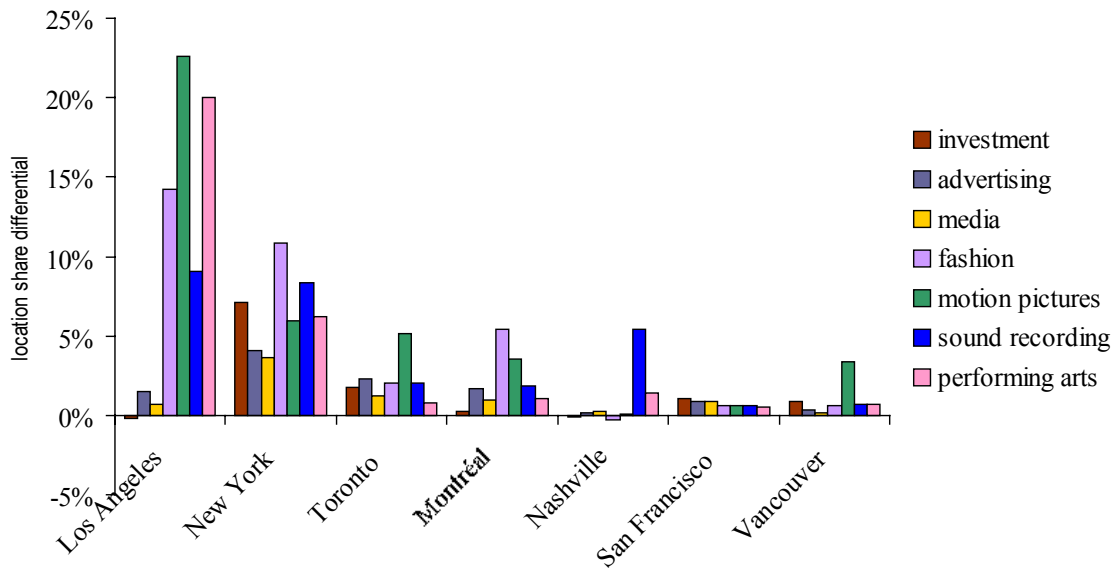
Angeles and Santa Barbara.¹⁵ Finance also varies enormously. Although average pay in this industry appears to be relatively high everywhere it is extremely high in the New York area. A relevant strategy here, perhaps, is to be a leader in alpha cluster industries, those industries with a high capacity for continuous rapid new product introduction.

Alpha Clusters in Canada

In terms of their share of business establishments in alpha cluster industries, a number of Canadian centres appear to rank quite highly among North American metropolitan areas. For the chart below business establishment data for the year 2000 was aggregated into groups according to the table of alpha cluster industries at the beginning of this paper. Once this was done, metropolitan areas' share of North American business establishments in each group was adjusted by subtracting their share in all industries to obtain a proportion *above* their average (a location share differential). This is the same process that was used to identify New York's industry strengths. The metropolitan areas in this chart had the highest average location share differential in these alpha cluster groups.

¹⁵ The average annual pay in New York for Independent Artists, Writers and Performers indicated on this chart is for 2002 as 2001 data for New York was not disclosed by the Bureau of Labour Statistics.

Leading Alpha Cluster Metropolitan Areas



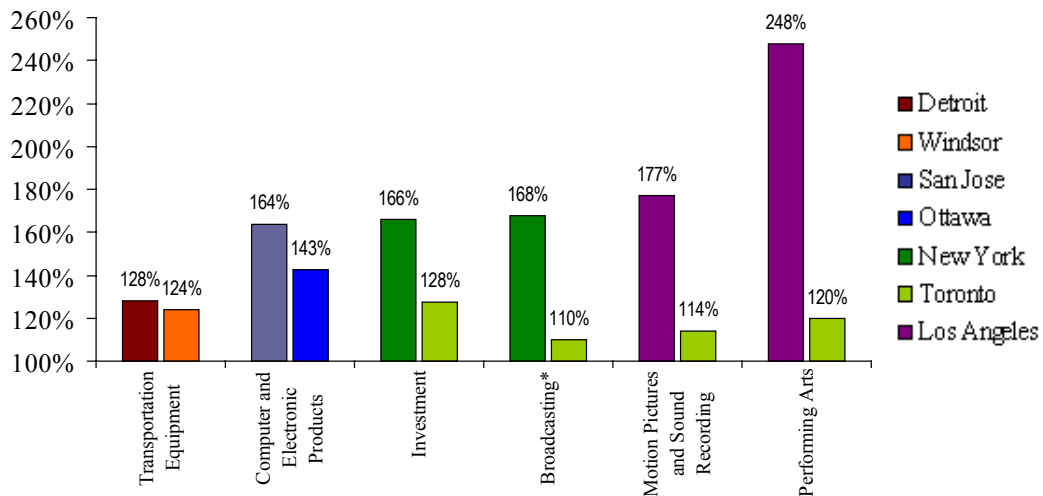
It can be seen that while New York ranks highly in every category it ranks behind Los Angeles in motion pictures, performing arts, fashion, and sound recording. However, Los Angeles is much less prominent in other groups, particularly investment. Toronto ranks quite highly across all groups and, like Montréal and Vancouver, is particularly strong in motion picture production. Montréal is also quite strong in fashion related industries. Nashville's most obvious strengths are in sound recording and performing arts, while San Francisco is fairly strong across all groups.

Some possible reasons why Canadian centres rank quite highly among North American metropolitan areas may include and a fairly distinct financial industry and a relatively high number of stock exchanges; substantial investment in cultural products; an

advertising industry associated with distinct national media channels; and an exchange rate that encourages U.S. motion picture location shooting.

While there appear to be a substantial number of establishments in alpha cluster industries in several Canadian metropolitan areas, these clusters do not appear to be generating the very high wages that are evident in such places as New York and Los Angeles. The chart below compares average annual pay in several metropolitan areas industries against the same industries nationally¹⁶. The extent to which pay exceeds the Canadian national average in Windsor’s transportation equipment manufacturing industry is comparable to the extent to which pay in Detroit exceeds the U.S. national average. In computer and electronics products manufacturing Ottawa compares reasonably well with

Pay Compared to National Average



* Canadian data for broadcasting includes telecommunications

Data sources: Canadian 2001 Census (2000 data), U.S. Census of Employment and Wages 2001

¹⁶ The North American Industry Classification System codes for these industries are: transportation equipment 336; computer and electronic products 334; investment 523; broadcasting Canada 513 U.S. 515; motion pictures and sound recording 512; performing arts 711. Canadian data uses NAICS 1997 while U.S. data uses NAICS 2002.

San Jose. But in alpha cluster industries Toronto is far below key U.S. centres.

One possible reason why Canada may be under performing in terms of wages in alpha cluster industries may be that, while there is substantial public investment in several of these industries in Canada¹⁷, they tend not to be as globally oriented as other industries. Canada's automotive manufacturing and computer and electronic products industries are very much involved in international markets while the Canadian financial and culture industries are largely domestically focussed, limiting their revenue potential. Cultural industries in particular are often subject to domestic-oriented cultural policy rather than economic development policy. Canada is not the only country to be confronted by this. The globalization of cultural industries has recently become more of a priority issue in other countries as well. Some government departments such as the United Kingdom's Department of Trade and Industry¹⁸ and Australia's Department of Communications, Information Technology and the Arts¹⁹ have begun to focus more on the economic importance of these industries and have engaged in studies of several creative industry clusters.

¹⁷ For example Canadian governments spent \$6.3 billion on culture in 2000/2001 which is comparable to, although substantially less than, the \$7.9 billion spent on science and technology. For data see Government Expenditures on Culture, Statistics Canada catalogue number 87F0001XIE; Federal Government Expenditures and Personnel in the Natural and Social Sciences, 1993-1994 to 2002-2003, Statistics Canada catalogue number 88F0006XIE2003009; Scientific and Technological Activities of Provincial Governments 1992-1993 to 2000-2001, Statistics Canada catalogue 88F0006XIE No. 5.

¹⁸ www.dti.gov.uk

¹⁹ www.dcita.gov.au

Policy Implications of the Distinct Characteristics of Alpha Clusters

Despite the importance that is currently placed on innovation, the pace of new product introduction in such industries as investment, advertising, and culture is all but ignored though it surely outstrips most other industries. Indeed, policy makers, statistical organizations, and researchers often tend not to think of innovation in these industries as innovation at all. The reason for this might be found in the highly influential “Oslo Manual”, the OECD’s proposed guidelines for collecting and interpreting technological innovation data. While this manual explicitly states that it uses only a limited concept of innovation, in practical terms this concept determines what much of the world considers to be innovation in its entirety. But while misapplication of the Oslo Manual may be to blame to some extent, there is also reason to criticize the manual itself for defining innovation so narrowly. It specifically refers to fashion as an example of an industry *not* to be included. The manual’s definition of innovation “requires an objective improvement in the performance of a product or in the way in which it is delivered”²⁰ and excludes what it refers to as “other creative product improvements” presumably on the basis that they are subjective.²¹

One may well wonder, though, at the validity of this distinction. Presumably any *improvement* must have meaning and value to the user of the product implying that all improvements are subjective. Certainly some changes may be widely viewed as

²⁰ www.oecd.org/dataoecd/35/61/2367580.pdf

²¹ Holbrook and Salazar argue for the need to revise Oslo Manual-based innovation surveys and note that broadening the concept of innovation, perhaps even to include “aesthetic improvements” is being explored. See *A Debate on Innovation Surveys*. Paper presented at the conference in honour of Keith Pavitt “What do we know about innovation?”, SPRU, University of Sussex, 2003

improvements but even unanimous subjectivity surely does not constitute objectivity. Perhaps a change in a product may be objective in the sense that it is measurable like the size of a computer. However, the measurement is not related to how much better the product is. A smaller computer might only be considered an improvement to the consumer who wants to carry it around but even then it is not a matter of “the smaller the better”. A *change* in a product can be objective but whether a change constitutes an *improvement* requires a subjective judgment.

The way we conceptualize innovation has important implications for how we measure it. Commonly used indicators tend to measure innovation with the expectation that it articulates itself in the economy through the adoption and commercialization of advances in technology leading to a productive advantage that results in a growth in the number and/or size of technologically advanced firms. Thus, widely used measures of innovation in the economy include education in science and engineering, research and development, venture capital, patents, business start-ups, initial public offerings and fast-growth firms. Innovation in alpha cluster industries tends to exhibit a very different pattern.

In alpha cluster industries the pace of new product introduction is so rapid the usual rules for the way in which innovation happens in the economy don't apply. A single innovation can often form the basis of a technology firm's existence, for its patentable intellectual property, for its acquisition of venture capital investment, and for its initial growth. But in the short life cycle world of creative alpha cluster industries firms are successful only if they can continually and rapidly offer new products.

This changes the way innovation materializes and can be supported in the economy. One product often forms the basis not of a firm but of a short-lived project.²² For example risk capital is important in the production of motion pictures. However it is generally raised on a project-by-project basis and not in venture capital markets. Venture capital investors generally acquire firm equity since the innovative product they are helping to finance is expected to largely form the basis of the firm's value over an extended period of time. In creative industries an innovative product is only one of many for the firm, each of which is expected to have lifespan of perhaps only weeks or days. Indeed the inability to offer firm equity can severely restrict fund raising options in these industries.

Another consequence of the short product life cycles and the emphasis on uniqueness in creative industries is that intellectual property protection can be rendered irrelevant. In technology industries intellectual property remains fundamental to competitive advantage. While ICT and biotechnology tend to be considered quite innovation-intensive, they rely more on patent protection of relatively infrequent breakthroughs than on the sort of constant innovation that regularly takes place in alpha cluster industries. While intellectual property protection is used in such industries as motion pictures or music, the demand for originality alone can restrict competitors from successfully copying the innovations of others. In industries like finance, news broadcasting, and fashion the incorporation of elements of competitors' products is hardly discouraged but rather considered an essential part of the industry. For example others following in on a

²² Such a project can often involve inter-firm collaboration. See Maskell and Lorenzen's discussion of the European pop music industry in *The Cluster as Market Organization* DRUID Working Paper No 03-14.

good investment helps drive up its value and is part of the efficient functioning of financial markets. Broadcasters vie to be the first to report important news items but also get much of their information from each other and don't claim exclusive rights to a story. The following of trends set by successful designers forms the very basis of 'fashion'.

If intellectual property is utilized in alpha cluster industries, it rarely takes the form of a patent. Indeed, none of common measures of innovation mentioned above: education in science and engineering; research and development; venture capital; patents; business start-ups; initial public offerings; and fast-growth firms are very relevant to innovation in these industries. Similarly, prevalent public policies aimed at stimulating innovation, such as public investments in scientific education and research and the provision of fiscal incentives for private research and development, venture capital investment, the ownership of intellectual property, and capital gains will be largely ineffective in stimulating innovation in these industries.

The distinction between high-tech clusters and alpha clusters also has implications for urban development policy. An important difference between these two groups is that while they both exhibit strong cluster characteristics such as a rapid pace of innovation, relatively high spatial concentration, and high wages in leading clusters, industries that are "high-tech" tend to change over time. Some regions have developed a high degree of technological competence in certain industries during a time of rapid innovation only to experience long-term economic decline once the phase of hyper-innovation passes. The continuous rapid innovation in the alpha clusters of a city like New York sustains

perpetually high incomes. New York seems invariably to remain among the highest income regions without ever being a leader in technological innovation.

This may help explain why New York stands in contrast to other cities that are troubled by a decaying downtown core. In accord with cluster theory, businesses in innovation-intensive industries often locate close to one another in order to remain knowledgeable and competitive. But as the pace of innovation in technology industries declines this becomes less of a necessity. In Detroit for example, where the era of hyper-innovation in its foremost industry has long since passed, the central city's population is approximately half its level of 50 years ago. Automotive companies do not need to locate downtown and hence the people who work at them are also not likely to live downtown.

In contrast, cities that are prominent in alpha clusters such as New York, London, Paris, and Tokyo are often the most expensive cities in which to locate. On a smaller scale, arts-based urban regeneration has become a prominent tool for urban developers attempting to revitalize downtown cores. The highly interdependent nature of these industries supports the building of communities and there is growing evidence of their positive impact on a wide range of economic and social variables as well²³.

²³ For a study of the impact of arts-based regeneration projects in Toronto and Vancouver conducted by Ryerson University's Centre for the Study of Commercial Activity, see *Beyond Anecdotal Evidence, The Spillover Effects of Investments in Cultural Facilities* at www.torontoartscape.on.ca

Conclusion

This paper suggests that some industries, those characterized by extremely rapid ongoing new product introduction, exhibit a unique set of characteristics with important economic development implications. These ‘alpha cluster’ industries tend to be very spatially concentrated. The most innovative clusters in these industries support very high local wages over an extended period of time. Many of these industries have a highly creative, even artistic element. Industries like these are often valued for their ability to create an attractive environment for people to live and visit but they also have substantial value in their own right as sources of innovative production. However measuring this type of innovation may require somewhat different tools than those commonly being employed since such characteristically rapid product innovation manifests itself in the economy in a different way than does technological innovation.

Similarly the unique characteristics of alpha clusters may require a distinct policy approach. Training relevant to innovation in these industries includes education not in science but in finance or arts. A relatively high degree of spatial concentration implies that employees will be drawn to the region from a broad area so the assimilation of people not trained locally may also be a very important factor. The rapid pace of new product introduction suggests that facilitating commercialization may be an effective tool but that intellectual property may be of some, but not central, importance. The very cluster-dependent nature of these industries implies that policies to promote networking and information sharing could be highly relevant. Financing innovation in these

industries may also require a unique approach. Industries like motion pictures, sound recording, and publishing provide examples where the ability to finance products is far more narrowly held than the ability to create them but where equity-oriented options such as venture capital investment are not necessarily available.

Policy relevant to alpha cluster industries is one area that will require more extensive study. The primary purpose of this paper is to introduce this set of clusters that are potentially very important in the context of innovation-oriented economic development. It has shown that these clusters are very spatially concentrated and can pay very high wages. It has also argued that the innovation that occurs in these industries needs to be understood as equally important but different from innovation that occurs in other industries and that policy may need to adapt accordingly. It has also shown that Canada has a relatively strong base on which to build in alpha cluster industries but that there may be some work to be done in making Canadian centres international leaders in these industries.