

It's all about what you do

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In the Spring of 2001, I sat in Richard Florida's kitchen poring over a list with him. "Yes, no, no, obviously, ..., of course, nope, nada, none of those, don't think so, ..., Yes, what do you think? ..." Item by item, we looked through the Bureau of Labor Statistic's Standard Occupational Codes' occupation titles and identified the creative class. We already knew about knowledge workers and human capital, but we were looking for something else. We were looking for people who were being paid to think. We called them the creative class because creativity implies action – it's something that you do – not just a characteristic, like education that you happen to possess. We preferred creative over knowledge because knowledge, too, implied something static and had so often been conflated with "white collar" that we needed something new. And, knowledge workers didn't really include many of the artists, designers, and others whose work included the pure creative and innovative products that were the hallmark of the new economy we wanted to describe.

Florida's *The Rise of the Creative Class* was released in 2002 and gained a popularity that continues to grow. Measures like "creativity index" and "gay index" and "melting pot index", especially being applied to individual regions, garnered both practitioner and media attention. In Florida's modern creative economy, knowledge and innovation are the key. Those who generate those advances are both more mobile and more demanding of the place they are willing to call

home. Countries, states, and regions need to compete for talent at least as much as they have been competing to attract firms and industries. Today's economy is driven by creativity, and the holders of that creativity or "the creative class" drive regional prosperity (Florida, 2002).

We are living not only in a knowledge-based, but in a creative economy. Today, more people than ever before are being paid to think. In the developed world, these creative workers earn roughly half of all wages that are being paid. Their creativity is generating innovations that are driving the economy – innovations in technology, in design, in production processes, in service provision. These innovations are a precondition for increases in productivity, economic growth and thus ultimately a society's prosperity. The creative workers, however, have become a highly mobile economic resource and in fact the Creative Class tends to cluster in a relatively small number of metropolitan areas, or creative hot-spots around the world – such as Greater London, Ile de France or Silicon Valley. The ability to attract and retain these members of the creative class has become a major determinant of competitiveness for countries and regions.

Defining and Measuring the Creative Class

The Creative Class can broadly be defined as comprising those workers whose productive output depends on thinking rather than doing. Every

human being has the potential to be creative. The creative class, however, consists of people who are paid to think or to apply their talents to a specific task. It can be divided into two components, the "super creative core", or those workers whose output is completely dependent on intellectual activity, and "creative professionals", whose work is primarily related to intellectual activity but closely associated with a specific domain. (Definition based on work the author completed with Florida).

Based on these definitions just over 30 percent of the total U.S. workforce would belong to the creative class. The "working class", which includes construction, trades, and manufacturing, accounts for approximately 24 percent, and the "service class", which are typically low-wage, service-oriented jobs, comprises the remaining 45 percent. This implies that about 40 million people in the United States work in creative

occupations. While that accounts for less than a third of the workforce, the creative class earns almost half of the total wages being paid.

These broad calculations are based on occupational categories and therefore inclusion in the creative class is based on current paid activity rather than on any individual characteristic like educational attainment. The super creative core includes occupations such as architects and engineers, artists and designers, computer and mathematical occupations or educators. The creative professionals are, for example, those working in management, business and finance, law or certain segments of the health care industry (e.g. doctors). Not everyone in those occupations is necessarily creative and there are obviously creative people in other occupational categories. Nonetheless, these labor force statistics permit for some rough estimates about the size of the Creative Class.

U.S. Creative Sector Economy

	Creative	Service	Working
Workers (Talent)	40,379,520	59,769,270	31,949,350
% of Workforce	30.5%	45.1%	24.1%
% of Wages	48.8%	30.4%	20.6%

Figure 1

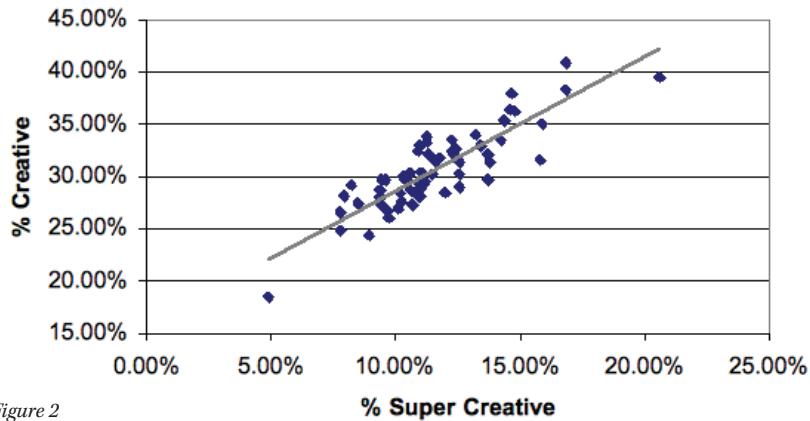


Figure 2

Figure 2 shows the relationship between the creative class and the super creative core for the 61 metropolitan areas in the U.S. with a population above one million. Not unexpectedly, those places that have a high concentration of one generally have a high concentration of the other. The two measures are strongly correlated, but the correlation is not perfect. In Las Vegas, for instance, the difference between the two is about 13.6% (creative class: 18.5%; creative core: 4.9%). In Washington DC, the creative class even outnumbers the super creative core by over 24% (creative: 41%; creative core: 16.9%). For the 61 regions, on average, adding the creative professionals to the super creative core adds another 19% of the total workforce to the creative class. Both the super creative core and the creative professionals are unevenly distributed across the country and around the world and, while related, a high concentration of one does not guarantee a high concentration of the other.

between the creative class and the more traditional measure of human capital, the percentage of college graduates. Although closely related with traditional human capital measures such as number of academics, the creative class is a better measure of the “talent in use”. First, by being based on current occupation rather than former training, the creative class is capturing more recent information about the state of talent in a region. Second, it only includes those on whose work a market value is placed (i.e. a salary). College graduates may be underemployed while those without an academic degree may be doing highly qualified work. As university drop-outs Bill Gates, Steve Jobs and Michael Dell would be excluded from traditional human capital measures, even though they are icons of the creative economy.

The Creative Class is drawn to cities and larger urban areas. Figure 4 shows the relationship between the share of a city region’s workforce that is in the Creative Class and the total population of the region (logged). As cities get

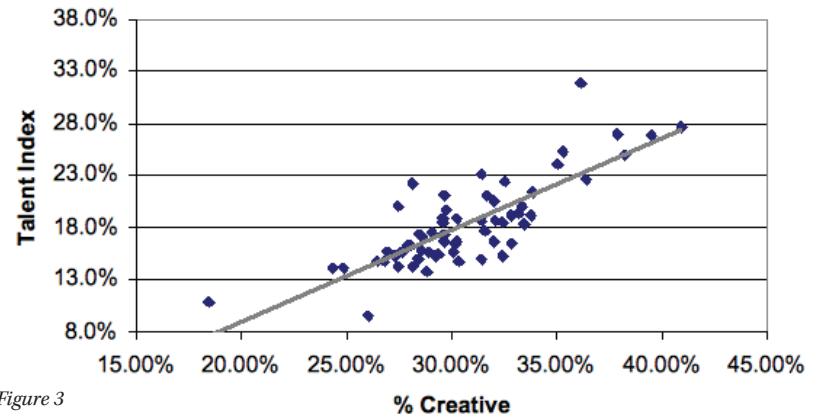
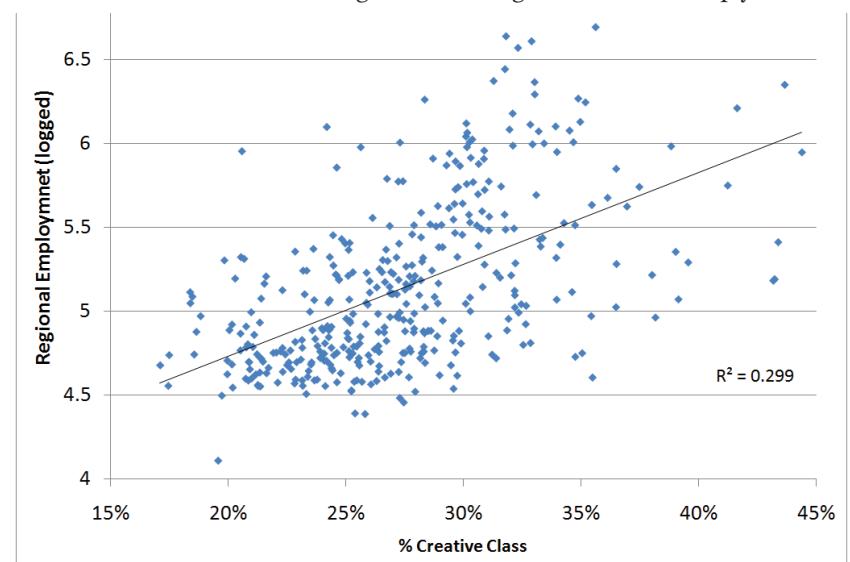


Figure 3

larger, not only does their Creative Class grow larger at the same pace as the rest of the population – the Creative Class grows even larger. Many potential explanations have been offered, but nothing has clearly demonstrated the underlying mechanism and causality at work. Clearly, larger urban centers have more than their “fair share” of Creative Class workers. Many of whom have moved to those regions

from elsewhere. And, while having an employment opportunity used to be the only thing needed to attract someone to a region, it is clearly no longer enough. Other factors like creative agglomeration effects and regional amenities have become important factors in creating growing and prosperous regions in today’s Creative Economy. Human capital can no longer be measured simply as a fixed



Who are the 40,000,000?

Occupations		Workers	Salary (\$B)
T	Computer and mathematical	3,076,200	213.0
	Architecture and engineering	2,430,250	160.9
	Life, physical, and social science	1,231,070	73.4
	Healthcare practitioners and technical	6,713,780	416.5
A	Arts, design, entertainment, and media	1,727,380	79.6
P	Management	5,892,900	541.7
	Business and financial operations	5,826,140	349.6
	Legal	976,740	83.4
	Sales and related occupations	4,298,620	147.7
E	Education, training, and library occupations	8,206,440	371.9
Total		40,379,520	2,437.7

Figure 4

“stock” or “endowment” that region possesses – instead it must be seen as a “flow” that moves from place to place as the individuals who own their human capital find the region that best meets their current needs.

The various creative professions can be grouped into four broad categories that can be remembered by the mnemonic T-A-P-E: Technology and Innovation, Arts and Culture, Professional and Managerial, Education and Training. Figure 5 shows the (2006) composition of the creative class in the U.S. The largest numbers of individuals are in Education and Health care while the greatest total salaries are paid to Managers and Health care practitioners.

Figure 6 shows the change in the creative, service, working, and agricultural classes in the U.S. from 1900 to 2006 and the estimates through 2020. The creative class has grown from

about four million in 1900 to over 40 million today, and is expected to count over 50 million a decade from now. The creative, service and working classes continue to grow in absolute terms. The anticipated growth rate between now and 2020, however, is larger for the creative class (20%) than the service class (14%) and working class (10%). Figure 7, illustrates the changing composition of the U.S. workforce and the continued transformation towards a creative economy. While the relative shares of the agricultural and working classes continue to decline, the service class share will remain fairly stable. The share of the U.S. workforce in the creative class, however, continues to grow. These projections are based on estimates from the U.S. Bureau of Labor Statistics. The fastest growing creative occupations are in computer and health care while the largest number of new jobs will be added in education and health care. Generally speaking,

the same trend can be observed in other developed economies.

Occupational and Industry Clusters

Over the last 50 years, geographers and economists have come a long way from attributing regional growth primarily to exports and trade. Solow (1956) noted the effect of technology on economic growth. Ullman (1958) noted the role of human capital in his work on regional development. Jacobs (1961, 1969) emphasized the role of cities and regions in the transfer and diffusion of knowledge; as the scale and diversity of cities increase, so do the connections between economic actors that result in the generation of new ideas and innovations. Romer’s (1986, 1987, 1990) endogenous growth model connected technology to human capital, knowledge, and economic growth. Invention in the neoclassical framework was no longer exogenous, but a purposeful activity demanding real resources. Lucas (1988) further developed and explicitly identified the role of human capital externalities in economic development. Building on Jacobs’ and Romer’s work, Lucas (1988) highlighted the clustering effect of human capital, which embodies the knowledge factor. He recognized the role of great cities, which localize human capital and information, create knowledge spill overs, and become engines of economic growth. Cities reduce the cost of knowledge transfer, so ideas move more quickly, in turn giving rise to new knowledge more quickly.

It is now widely recognized that regional competitiveness and growth depends largely on the concentration of skills, innovations and the systemic linkages between firms, institutions and people (i.e. clusters). Cultivating such regional ecosystems of economic actors has become the cornerstone of regional and national economic development strategies. A seminal work in this regard has been Porter’s (1998) analysis of industrial clustering, where he outlined the dense linkages across industries that generate new products and encourage the exchange of ideas. While newfangled in its approach, the importance of clustering was already formalized some 100 years ago by Alfred Marshall (1890) in his discussion of “industrial districts” that possess something “in the air” sparking perpetual innovation and productivity. Indeed, as Porter argues, regional economic growth cannot be attributed to the mere sum of individual economic activities but also to synergies between firms, knowledge-spillover, supply-chain linkages and other clustering effects.

The clustering of members of the creative class is not only important for regional growth because their raw labor is a factor of production. More importantly they increase productivity because of the human capital they hold. Hence, more recent productivity measures take into account a region’s human capital stock. Florida’s (2002) “creative class” and Glaeser’s (2003) “skilled city” focus on the talent or supply contributions to regional growth. While Porter’s earlier industry-based model focuses on the demand

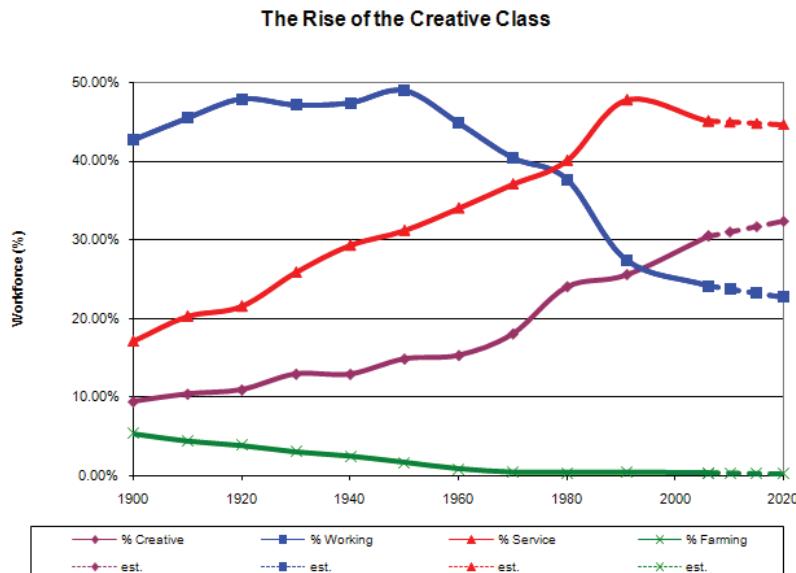


Figure 5

side of the labor market, these more recent contributions focus on the supply that makes such industrial growth possible. After all, skilled and creative individuals are a highly mobile resource and thus the factors determining the supply-side are critical for economic development. What is driving these clusters is not only the industry, but also the people and their skills and occupations.

Understanding a regional economy only from an industry perspective or only from an occupational perspective does not provide a comprehensive analysis of local economic dynamics. This analysis, which jointly considers the distribution of occupations within industry and industries across occupations, provides deeper insight into a regional economy with possibilities for how such results could aid in more nuanced place and skill specific development and industrial

policy.

Across the U.S. in 2000, the Information Technology Industry accounted for approximately 2.0 million full-time employees, about 1.8% of the total workforce. However, at exactly the same time, Information Technology Occupations accounted for 3.4 million full-time employees, about 2.8% of the total workforce. The occupational number was actually even higher since the industry count includes the self-employed while the occupational data excludes the self-employed. Clearly, the IT industry and the IT occupations are not the same thing. The latter provides a broad skill base to multiple industries. Using Census PUMS data which includes both industry and occupation for individuals, we find that over 50% of those working in an IT occupation are not working in the IT industry. And, over 25% of those working in

the IT industry are not working in an IT occupation. Not quite one-in-four people working in either the IT industry or an IT occupation actually are in an IT occupation at a company that is in the IT industry.

While only a single industry and occupation was specifically addressed by this analysis, it is worth noting several things. First, this particular industry and occupation combination is one that has been the continued focus of much economic development activity. Second, across the entire U.S. the IT industry employs people in 337 (of 509 unique) occupational code groups. . And, for the U.S. IT occupations show up in 243 (of 266 unique) industry code groups. While only a “single” cluster, it is clear from these results that with only 11 IT occupations and 5 IT industries, 326 non-IT occupations and 238 non-IT industries cross-fertilize in some capacity with IT, using IT skills in non-IT industries. Yet this nuance would not be picked up by employing either occupational or industrial analysis. This technique could easily be used to

understand numerous other industry and occupational clusters.

By linking occupation and industry, this analysis helps to develop an understanding that is especially important in today’s global economy. It is no longer sufficient to evaluate a region’s manufacturing base and potential for outsourcing, off-shoring, or global competition solely on the basis of industry. The occupational mix must also be taken into consideration. For example, Los Angeles has significant employment in the automotive industry. But, no one who understands that industry in Los Angeles would argue that it is the same as Flint, Michigan or Oshawa, Ontario. By also looking at the occupational mix, it becomes clear that many of Los Angeles’s “auto workers” are designers and programmers -- not assembly line workers. In the same way, much of Detroit’s automotive employment has shifted from significant shares in manufacturing occupations to people working in management, accounting, marketing, etc. The transition from manufacturing employment that is still

Occupations		Growth (2004-2014)	New Jobs (000; by 2014)
I	Computer and mathematical	30.7%	1,389
	Architecture and engineering	17.1%	876
	Life, physical, and social science	16.4%	531
	Healthcare practitioners and technical	25.8%	3,047
A	Arts, design, entertainment, and media	14.9%	851
P	Management	11.3%	2,757
	Business and financial operations	19.1%	2,163
	Legal	15.9%	336
	Sales and related occupations	9.6%	408
E	Education, training, and library occupations	20.0%	3,558

Figure 6

based on people actually assembling products to advanced manufacturing or manufacturing employment based mostly on “home office” activities can only be discovered and understood by looking at the occupational mix within the specific manufacturing industries. If the actual manufacturing activities have already been moved to lower cost labor markets, the remaining “manufacturing industry” employment is more likely to be the higher value, more highly paid occupations that are less likely to move and are more difficult to transition out of the region simply based on lower labor costs. Just evaluating on employment within the industry without taking into consideration the mix of occupations will not reveal a meaningful picture of the situation. These distinctions are enormous when in the process of policy making targeting a particular industry. Car manufacturing tax breaks would no more help Los Angeles than art and design school subsidies would help Flint, Michigan. And yet, from a macro perspective, both regions would be prime targets for auto production industrial policy. The geographical distinctions in the production process and its vast implications for growth has been seminally documented by Massey (1984).

This analysis points to another important component of current economic development strategy. Because firms go where skills are, being aware of both the industries and the skills that drive regional development presents possibilities for other types of industry growth – particularly when the tides of globalization and innovation can change competitive advantage at a rapid pace. Skill strengths allow a region to seek out new opportunities and industry attraction outside of their primary cluster, a point that Jacobs (1969) made long ago. We speculate that our results may contribute to job training and educational attainment policies aimed at creating a local skill base that can be used in a variety of

different industries.

Why it's all about what you do

As our economy changed from deriving value from making and doing to thinking and designing, a whole lot of underlying structures and assumptions have changed with it. It's not about having accessible transportation or ready access to raw materials – today's successful regions are the ones that can attract and retain the raw material of the Creative Age – talented, highly skilled people. And, those skills are easily transferred among a collection of different industries. Regions can no longer find success from attracting a steel mill or a car plant. Instead, they need to attract Research Scientists, Computer Programmers, and Graphic Designers.

Over the past few decades, people had already internalized this transition without notice or remark. Introductions at cocktail parties or over coffee switched from talking about where you work to what you do. People increasingly focused on their occupation and decreasingly talked about their company or industry. Partly this came about from the transition away from the lifetime employment model where a single employer would hire someone “from cradle to grave”. Related was the increase in contingent and independent contract and consulting based work. Individuals were no longer employed – they got a short term contract. While partly a cost-saving measure on the part of savvy employers, this was also a response to the risk associated with rapidly changing technologies and a fickle customer base. When everything is a trial product, employers don't need to lock-in skills for years – they just need specific skills for the next few months. Whatever the causes, the shifting economy resulted in occupation becoming much more prominent than it had been in the past.

Since “Oz” is primarily an architecture journal, and I'm more of an economic geographer or regional scientist (what I do), I probably should say something about architecture. Well, I won't. You're smart people; you're part of the Creative Class; you're the ones who are going to give physical form to these new (predominately urban) spaces that will be inhabited increasingly by people focused on what they are doing rather than firms focused on what they are making. I've given you the story, I've outlined its history and talked about the significant changes and the new foci of the Creative Economy. Now, it's your turn. It's all about what you do...

References

- Catalytix, Inc. (K. Stolarick) “Regional Creative Scorecard” (2002).
- Currid, E. and Stolarick, K. (2008) “The Occupation-Industry Mismatch: New Trajectories for Regional Cluster Analysis and Implications for Economic Development”, *Urban Studies*.
- Feldman, Maryann P. (2000) “Location and Innovation: The New Economic Geography of Innovation, Spill overs, and Agglomeration”, *The Oxford Handbook of Economic Geography*, Gordon Clark, Meric Gertler, and Maryann Feldman, eds. (Oxford University Press, Oxford, UK)
- Florida, R. (2002) *The Rise of the Creative Class*, New York: Basic Books.
- Florida, R. (2004) *The Flight of the Creative Class*, New York: Harper Business.
- Florida, R. (2008) *Who's Your City?* New York: Basic Books.
- Florida R., Mellander C., and Stolarick K. (2008) “Inside the Black Box of Regional Development - Human Capital, the Creative Class, and Tolerance”, *Journal of Economic Geography*.
- Glaeser, E. (2003) “The Rise of the Skilled City”. Harvard University.
- Glaeser, Edward L., H. Kallal, J. Scheinkman, and A. Shleifer, (1992) “Growth in Cities”, *Journal of Political Economy*, Volume C, 1126-1152
- Inglehart R. and w. Baker (2000) “Modernization, Cultural Change, and the Persistence of Traditional Values”, *American Sociological Review*, Vol. 65, No. 1, 19-51. Feb., 2000.
- Jacobs, J. (1961) *The Death and Life of Great American Cities*, New York: Random House.
- Jacobs, J. (1969) *The Economies of Cities*, New York: Random House.
- Lucas, R. (1988) On the Mechanics of Economic Development, *Journal of Monetary Economics*, 22: 3-42.
- Marshall, A. (1961, Originally 1890). *Principles of economics*. London and New York: Macmillan for the Royal Economic Society.
- Porter Michael (1998) “Clusters and the New Economics of Competition,” *Harvard Business Review*, November-December 1998, pp. 77-90.
- Porter, M. (1990) *The Competitive Advantage of Nations*, (Free Press, New York, NY)
- Romer, P. M. (1986) Increasing returns and long-run growth, *Journal of Political Economy*, 90 (October): 1002-37.
- Romer, P. M. (1987) Crazy explanations of the productivity slowdown, *NBER Macroeconomics Annual*, 2: 163-202.
- Romer, P. M. (1990) Endogenous technical change, *Journal of Political Economy*, 98(5): S71-S102.
- Solow, R. (1956) A Contribution to the Theory of Economic Growth, *Quarterly Journal of Economics*, 70: 65-94.
- Stolarick, K. “Technology, Talent and Tolerance: The “Soft” Factors of Regional Growth,” *Weiche Standortfaktoren* [roughly translated, “The Value of Regional Factors”], Friedrich Thiessen, Oleg Cernavin, Martin Fuhr, and Martin Kaltenbach editors, Duncker and Humblot, Berlin, 2005.
- Stolarick, K., Florida, R. (2006) “Creativity, connections and innovation: a study of linkages in the Montréal Region”, *Environment and Planning A*, 38:10, 1799 – 1817.
- Ullman, E. L. (1958) Regional development and the geography of concentration, *Papers and proceedings of the Regional Science Association*, 4:179-98.