Creative Knowledge Workers across 'Varieties of Capitalism': evidence from Sweden and the UK

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Abstract

Research on the knowledge economy has in recent years focused upon the interplay between place, individuals and creativity. National differences of how capitalism is organised can be drawn into this discussion, but are seldom tested systematically. By investigating data from the UK as a Liberal Market Economy and Sweden as a Coordinated Market Economy, we develop and test 8 hypotheses to analyse the role of 'varieties of capitalism' in the context of location dynamics of creative knowledge workers. Based on these results we discuss the robustness of the VoC approach as a valid taxonomy of differing political economies and by implication the differing economic geographies of the creative class.

Creative Class; Varieties of Capitalism; Regional Development; Knowledge Economy

J24 O18 P51 R11

Introduction

The idea that place is the key organising factor of economic activity within the knowledge economy has gained interest in recent years; much of this focus has been upon the actual location of knowledge generation and spillovers (Abramovsky et al, 2007), or alternatively firms' use of networks and cross-locality knowledge sourcing strategies (e.g. Gertler, 2003; Bathelt et al, 2004; Pickernell et al 2009; Clifton et al, 2010). The other strand of research emerging over the last decade has been the role of knowledge embodied in mobile individuals- in essence the potential *flow* of human capital rather than the more traditional view of this as a stock or endowment. Authors such as Faggian and McCann (2009) have analysed human capital mobility with specific regard to university graduates, but much of the wider debate around the role of place in the location of knowledge workers has been centred on Richard Florida's theory of the creative class of (Florida, 2002a). This essentially argues that economic outcomes are tied to the underlying conditions that facilitate creativity and diversity. Thus the ability to attract creative people and promote creativity and to be open to diverse groups of people of different ethnic, racial and lifestyle groups is hypothesised

to provide distinct advantages to regions in generating innovations, growing and attracting high-technology industries, and spurring economic growth.

Significantly, the pioneering work of Florida and his associates (Gertler et al, 2002) has been undertaken with reference to the United States, as has other related research (see for example Markusen, 2006; McGranahan and Wojan, 2007; Wojan et al, 2007). There is however growing empirical evidence that the European context does have implications for the trans-national application of the creative class thesis (Clifton, 2008; Andersen et al 2010a; Andersen et al 2010b; Boschma and Frisch, 2009; Hansen and Niedomysl, 2009; Asheim, 2009; Martin-Brelot et al, 2010). This research has though been somewhat disparate in its focus, typically dealing with one national context only, a single coherent group (such as 'the Nordics'), or comparative in approach but not underpinned by any coherent model of differing national economic structures. Therefore we suggest that an analysis of the location of these creative knowledge workers (and the factors influencing it) using a more general socio-political framework is timely. As such, in this paper we apply the varieties of capitalism (VoC) model (Hall and Soskice, 2001) to this growing research area- i.e. that of the creative class hypothesis (Florida, 2002a; 2005). The paper fleshes out a research agenda put forward by Asheim (2009) and Clifton and Cooke (2009), and in turn seeks to provide insight into the robustness of the VoC approach as a valid taxonomy of differing political economies and by implication the differing economic geographies of the creative class. This is done through analysis of a comprehensive dataset from the UK (as a Liberal Market Economy or LME), and Sweden (as a Coordinated Market Economy CME). This dataset includes variables such as levels of creative class employment, 'bohemian' occupations, diversity, and other measures of quality of place. The investigation centres around the question of how the distribution of creative activities varies between LMEs and CMEs- are there differing levels of support for the jobs follow talent hypothesis between these? For example, do the quality of place factors suggested by Florida and others to be attractive to the creative class vary in their importance across different economic systems? Other questions include whether there might more generally be an impact on the distribution of regional growth i.e. do the higher levels of social security in the coordinated Nordic economies (compared with the US and UK), combined with smaller regional labour markets reduce potential mobility and adjustment? Finally, we consider the policy

implications that may be inferred from the above and discuss the influence that urban hierarchies can have on the relationship between the creative class and regional development.

The Emerging Geography of Creativity

A key reason for believing that a significant shift has occurred taking us into a knowledge economy is that data suggest this to be the case. Thus the book value of intangible assets compared to raw materials has shifted from 20:80 in the 1950s to 70:30 in the 1990s (De Laurentis, 2006; Cooke et al. 2007). Consequently the distribution of creative knowledge workers, conceptualised as talent and human capital, is an important factor in economic geography, as talent is a key intermediate variable in attracting high-technology industries and generating higher regional incomes. This makes it an important research task to explore factors that attract talent and its effects on high-technology industry and regional incomes (Florida 2002c). A distinct advantage of city-regions is their ability to produce, attract and retain those workers who play the lead role in knowledge-intensive production and innovation – who provide the ideas, know-how, creativity and imagination so crucial to economic success. Thus it is argued that economic outcomes in the knowledge economy are linked intrinsically to the locational choices of key creative workers, and that variables such as quality of place, cultural environment, tolerance and diversity are central to these choices.

The idea that growth-based development agendas can be actively pursed at the city level is however not a new one – see for example the "urban entrepreneurialism" documented by Leitner (1990). More generally, theorising on how local environments influence economic outcomes has a long and rich history, the two dominant views within which can be traced back to Marshall (1920)- agglomerations, industry/firm-focused, and Jacobs (1961; 1969) – variety, people-focused. Traditional theories of economic growth and development tended to emphasise the role of natural resources and physical assets. Such theories were used to inform strategies typically based on various incentives to try to alter the location decision of *firms*. If we accept that the value creation in many sectors of the economy rests increasingly on non-tangible assets, the locational constraints of earlier eras – for example, the access to good natural harbours or proximity to raw materials and cheap energy sources – no longer

exert the same pull they once did. Instead, what Florida and his associates assert matters most now are those attributes and characteristics of particular places that make them attractive to potentially mobile, much sought-after *talent*. It should of course be acknowledged that there is work preceding the first accounts of the Creative Class which makes explicit reference to quality of place and locational choice factors, including that of Wong (2001) in the UK, which in turn can be linked back to Hall *et al.* (1987). Research on this question indicates that talent is attracted to and retained by cities, but not just *any* cities. In their analysis of American metropolitan areas, Richard Florida and Gary Gates have shed new light on those characteristics of urban regions that seem to be most important in this process (Florida and Gates 2001; Florida 2002a, 2002b, 2002c). The central finding of this work is that the social character of city-regions has a very large influence over their economic success and competitiveness. In particular, Florida and his colleagues have found that those places that offer a high quality of life and best accommodate diversity enjoy the greatest success in talent attraction/retention and in the growth of their technology-intensive economic activities. In this way, Richard Florida (2002a) argues that regional economic outcomes are tied to the underlying conditions that facilitate creativity and diversity. The ability to attract creative people and promote creativity and to be open to diverse groups of people of different ethnic, racial and lifestyle groups provides distinct advantages to regions in generating innovations, growing and attracting high-technology industries, and spurring economic growth. Talent attraction and the factors that make places attractive to creative, mobile talent, are therefore becoming key emerging areas of policy interest at local, regional, national and European levels. There is an ongoing debate around the relative merits of a 'creative capital' approach to explaining regional economic outcomes versus one focused more narrowly upon human capital (Berry and Glaeser, 2005; Florida et al, 2008). That aside, the question remains as to what actually attracts such individuals to any given place; Florida et al (2008) find that tolerance is associated with both the creative class and high levels of human capital. One other strand of research into the role of quality of place tends to emphasise 'amenities' (Clarke 2003; Shapiro 2006; Glaeser, 1994) as crucial for locational choice for creative knowledge workers[1].

[1] In the analytical section of this paper we include a cultural opportunity index (COI) and a public provision index (PPI) as proxies for amenities.

There is now European research which has begun to address questions around the relative mobility of the creative class and their motivations for re-locating, but it typically does so within one national context only (e.g. Faggian and McCann, 2009; Hansen and Niedomysl, 2009; Niedomysl and Hansen 2010). Indeed these latter authors find little evidence for a highly mobile pool of talented knowledge workers- it may be of course that this relative lack of mobility can be explained by the national context in which this research took place i.e. Sweden- a more coordinated market economy that the liberal market context in which the creative class thesis was developed. Florida himself has returned to the migration / locational choice question (Florida, 2008) although as authors such as Clifton (2010) have noted the introduction of additional factors such as life stages and personality profiling is somewhat eclectic.

For policy makers, this work offers a means to further investigate the importance of location decisions in the knowledge economy, the importance of higher education, and the importance of immigration and settlement, as well as the nurturing of arts and creativity directly. Given the interest that the creative class thesis has received from academics, policy-makers, and the media alike, it is no surprise that it has received a high degree of critical attention. This saw Florida lauded by some (not least many of those charged with city-making policy) and assailed by others—from both the left (elitist, promoting gentrification) and the right (undermining traditional values, advocating "big" government), which is no mean feat. The more rigorous critique has centred around the apparent fuzziness of some of the concepts, definitions and causal logic Florida employs, the seemingly convenient appeal of his ideas to the agendas of a multitude of urban actors, and conversely the minimal attention paid to difficult issues such as the potential inequalities and negative externalities implied by a creative class model of regional development (see for example Malanga, 2004; Markusen, 2006; Peck 2005).

'Varieties of Capitalism' as a Paradigm for Adapting the Creative Class Model to the European Context

Although North America (the context in which Florida developed his ideas) and Europe share many common values and institutions, there are aspects of their

respective societal development that show strong divergence with regard to political priorities, economic growth processes and social outcomes. It is appropriate therefore that consideration of how research on the creative class might be adapted to the European context should take place within the broader analytical framework of the varieties of capitalism approach. Soskice (1999) and others[2] convincingly argue that different national institutional frameworks support different forms of economic activity, i.e. that coordinated market economies have their competitive advantage in diversified quality production, while liberal market economies are most competitive in industries characterised by radical innovative activities. Following Soskice, the Nordic (and West European) welfare states can be referred to as coordinated market economies. The main determinants are the degree of non-market coordination and cooperation which exists inside the business sphere and between private and public actors, as well as the degree to which labour remains 'incorporated', and the financial system's ability to supply long term finance (Soskice, 1999) built on in-depth rather than proxy-based allocation, monitoring and evaluation (Porter, 1998).

The key insight of the VoC approach is that it does not see cross-national institutional variation as essentially deviations from some kind of fundamental 'best practice'; it is essentially concerned with the co-evolution of administrative and business institutions that determine the most appropriate strategies for addressing economic challenges within any given nation state.[3] As such these differences are not necessarily eroded over time or by increased external challenges; consequently in contrast to less dynamic models of cross-national institutional variation, convergence to some kind of best practice model is not the logical conclusion of the approach. As such, this model attracted us more than any other institutionalist approach to analysing the influence of

[2] Numerous authors have presented research emphasising both the importance and enduring geographical divergences of incentives and constraints regulating collective action. These include Richard Whitley (1999) and his concept of business systems, as well as Robert Boyer and Bruno Amable with the concept of 'social systems of innovation and production' (Amable 1999). The central common characteristic is a focus on complementary mechanisms of coordination, i.e. the structure of collective action in general – for instance between individual companies, capital and labour - and to what extent different sub-systems of coordination counteract or complement each other.

[3] While Soskice (1999) distinguishes between coordinated and un-coordinated market economies, Hall and Soskice (2001) distinguish between coordinated and liberal market economies, thus accepting that market coordination (liberal systems) should not be equated with lack of coordination (un-coordinated economies). Hence, this must be understood as a distinction between degrees of relational versus market coordination, not a distinction between coordination and non-coordination. From a conceptual viewpoint the market is a coordination mechanism equal to others.

governance regimes upon the evolution of space economies[4]. Recall we are studying generic phenomena – the location choices of skilled knowledge workers – seeking explanation for variance that is both internal to the firm and sector, and external to both. Accordingly, we are naturally seeking theoretical compatibilities rather than choosing two or three theoretical frameworks from a portfolio to see which offers the most persuasive explanation of the empirical patterns observed. In this field of research there is no such portfolio. Hence, for these reasons we feel the macro-framework we have chosen to help organise the comparative dimension of our work is the most appropriate.

It now remains to describe its main elements and show how it is made to work on empirical material of the kind we will be presenting. Thus a co-ordinated market economy is designated by virtue of the following characteristics.

- The economy is underpinned by a private law system that regulates business and labour contracts.
- Firms depend more heavily on non-market relationships to coordinate their interactions with other stakeholders within the economy.
- Market regulation and non-market firm-level modes of business co-ordination predominate.

Hence the markets of Finland, Germany, The Netherlands, Norway and Sweden are co-ordinated (Denmark is something of a special case, with liberalised market but a robust welfare state).

Conversely the UK (with the USA as the archetype) has a predominantly liberal market form of economic regulation.

- Business organisation managed through hierarchies and competitive market interactions (as described by Williamson, 1985).
- It has a shareholder not a stakeholder business culture with minimal legal constraints on firm organisation.

[4] The approach is not immune from criticism. There are at least three dimensions of this. The first is that it is manufacturing-centric; second is that, as we have noted, there is a great deal of variety within the two types; and third, that it postulates no sense of how co-ordinated market economies can compete in the long run against the 'monetarist assault' of the liberal market economies.

- Wage-bargaining is unionised in some industries, and negotiated individual compensation packages in others, with minimal government intervention.

This stylisation guides the analysis of comparative political economies across the countries we study, and is summarised in table 1 below. Commenting upon these contrasts, it can be said with confidence that these regulatory regimes differ markedly, and by implication given the central themes of labour mobility and locational choice, it seems likely that this will have a determinate effect upon variations in respective 'creative class' outcomes. The specifics of these potential variations are outlined within the Empirical Analysis section.

Table 1: about here

As noted earlier, the point of the varieties framework is not to show that one form of capitalism is intrinsically 'better' than another; both LMEs and CMEs can be shown to have delivered satisfactory levels of economic performance in the long run. Differences in outcomes are however apparent when looking below these aggregate levels (as Cooke & Schwartz, 2008, have demonstrated); the 'jobs to talent' hypothesis is essentially one of micro-level processes leading to observable macro outcomes, and so again it is reasonable to conclude that cross-national variations may be observed with reference to the taxonomy we employ. These structural differences will at least have to be taken into consideration in two different ways, partly by giving an adequate description and assessment of the quality of place of European cities, and partly by reflecting carefully on the impact of the different modes of organisation of important societal institutions such as the market, the education system, the labour market, the financial system, and the role of the state in the comparison between the coordinated and liberal market economies of Sweden and the UK respectively. It is reasonable to believe that these differences will have an impact on talented people's preferences for - as well as perception of - the quality of places in differing political economies. Moreover, even if such preferences are expressed in a similar ways, it does not follow that the implied policy prescriptions will necessarily be consistent between differing varieties of capitalism.

Data and Methodology

In the following section we address the presumed different economic geographies of a coordinated market economy and the liberal market economy. We define and test a set of hypotheses regarding the creative class in CMEs versus LMEs using detailed empirical data. To do this we use data from Sweden (CME) and the UK (LME) obtained from the respective official statistical bureaus. Data for Sweden comes from registers and covers the total population, data for the UK is derived either from the census of population or from large scale official surveys. They can thus be regarded as highly reliable. For comparability, data used in the analysis is from 2002 for Sweden and 2001 for UK; 2001 is the last census year in the UK while 2002 is the first year with reliable Swedish occupational data. In the analysis we use variables based on occupational data, educational data (ISCED 97) and employment data (NACE). In addition, we include data on population size.

The key variables for the analyses are the Creative Class Index, Bohemian Index, Talent Index, and Openness (Diversity) Index. These mirror variables employed in the work of Florida (2002a, 2002b, 2002c) and Gertler et al (2002) on the geography of the creative class in North America. In addition, indicators for cultural and recreational amenities (Cultural Opportunity Index) are also considered. A new measure is introduced to reflect the particular European context of this research; the Public Provision Index, capturing the supply of public sector goods such as education, health care, social security. Specifically, the variables we construct and analyse with respect to each spatial unit are:

- *Creative Class, Creative Core and Creative Professionals*: All three variables are calculated as shares of people employed in the relevant occupational group for any given location. These variables are also used in a Location Quotient (LQ) where each case is represented relative to the national average – i.e. one for Swedish regions and one for UK regions.[5]
- *Talent*: The talent variable is calculated as the share of the workforce that has an academic degree at or above bachelor level (ISCED97 5A and 6).
- *Public Provision Index (PPI)*: The number of employed in the public service sectors related to health and education per 1000 inhabitants in a region. (NACE 80, 85)

[5] For a detailed explanation of the indicators employed here see Andersen et al. (2010a), Clifton (2008).

- *Bohemian Index*: The share of the working population in artist-related occupations.
- *Cultural Opportunity Index (COI):* The number of people employed in culture and experience related industries by 1000 inhabitants. (NACE 553, 554, 922, 923, 925, 926)
- *Openness to foreigners*: The share of the population that that is born in a foreign country.
- *Employment Growth (Annual average 1993-2003)*: the average growth rate of the number ofemployed in a 10 year period.
- *Share of high-tech employees*: The share of all employed of those who are employed in the high-tech industries (defined as per DeVol et al. 2007).
- *New firms by 1000 inhabitants:* the growth in numbers of firms divided by 1000 inhabitants.
- *New high-tech firms by 1000 inhabitants*: the growth in number of firms divided by 1000 inhabitants. The same categorisation of high-tech is employed here as per above.

As definitions that encapsulated something approaching functional labour markets (analogous at least in part to the municipal city-regions employed in the North American research[6]) were sought, it was decided that the 'most meaningful functional unit' in each national context would be used, subject to this also being a level at which the necessary statistical data was available from the relevant national agencies. Comparing two countries at the regional level however may bring scepticism with regard to the units of analysis. Regions in UK are not the same as in Sweden; the UK is more densely populated and the total population is 5 times larger than in Sweden. Moreover Sweden has a more marked regional hierarchy than does the UK. Stockholm is outstanding and an outlier in almost all respects- London holds a similar position in the UK, but while Sweden only posses 25 regions with more than in 100.000 inhabitant out of a total of 70, the UK has 85 out of 87. Similarly, while only one region in Sweden has more than 1.000.000 inhabitants (Stockholm) 11 such regions can be identified in UK. This said, we argue that the regional units we employ in our analysis are meaningful; in both cases travel to work patterns are the primary cause of delimitation. For the UK this unit based upon the NUTS3 level (105 spatial units in England and Wales) but with multiple NUTS3 data within major functional

[6] Not in terms of absolute size – the US and Canadian regions typically being much larger; but rather having a similar role within the national context in question.

units combined as appropriate. Thus there are 87 UK units used in our analysis. Similarly, for Sweden the functionality has been the main denominator for demarcation of regions.

All variables used in the analysis are tested and are normally distributed according to the Kolmogorov-Smirnov test except for "Employment Growth 1993-2002" in Sweden. However, we include the variable in the analysis as it represents data on the total population, and so that we are able to examine linkages between the creative class in Sweden and job growth, albeit with the caveat that results for this variable may not be 100% reliable. In the analysis below we primarily make use of two standard methods to test our hypothesis. We use standard deviations on national data describe national inequality, and Pearsons Bivariate correlations as expressions of the relationship between the variables in question.

Empirical Analysis: Results and Discussion

In this section we outline and test 6 hypotheses on the data as described above. These are intended to indicate whether or not we can identify differences between liberal and coordinated markets with regard to basic tenants of the creative class thesis, and to what extent these differences should be taken into account within economic development strategies across regions and nations. As noted, fundamentally LMEs are more flexible and adjust faster than CMEs. There is a greater degree of movement between jobs and more focus on personal career development as opposed to institution-specific development. We would therefore expect our results to be compatible with this basic tenet.

The distribution of the Creative Class

The first set of hypothesis H_1 and H_{1a} concerns the distribution of the creative class in coordinated versus liberal market economies.

The Creative Class will be more evenly distributed in CMEs than in LME is the claim of the first hypothesis (H_1). At the core of the creative class model is mobility, i.e. the underlying 'jobs follow people' hypothesis. To have a measurement of the concentration of the creative class in the various regions in Sweden and UK we have computed a set of variables that indicate the location quotient (LQ). Moreover to paint

a broader picture we analyse not only the creative class but also the two subgroups of the creative class: the super creative core and the creative professionals. In addition 'talent', equivalent to human capital, is included to control for differences between the two often used categories: creative capital and human capital.

Table 2: about here

Table 2 shows larger standard deviations for the UK than for Sweden for the creative class, the creative professionals and talent. This is a clear indication of a more equal distribution of people with these characteristics in Sweden than in the UK. Moreover, the minimum value in Sweden is higher, which also indicates that the most marginalised regions in Sweden are closer to the average than their counterparts within the UK. CMEs are associated with such a relatively even distribution of educated labour because the state can more strongly influence development in terms of placing public and government activities in regions that are less favoured by market outcomes. Therefore the pattern is clear in this case: the distribution of creative class members and of talent is more even in the CME. However, what the table also shows is that the distribution of the super creative core –scientists and the like- is actually more equal in the UK. One explanation could be the regional hierarchy of Sweden compared to the UK; many of the positions that call for the super creative core, e.g within universities and R&D labs, are located in city areas, and the UK outnumbers Sweden in this respect. Hence the concentration of super creative people will be more polarised in Sweden compared to the UK with regard to the level of geography we employ.

Based on these simple descriptives, we can conclude that our hypothesis to a large extend holds: CMEs have a more even distribution of the creative class and of talent compared to a LMEs, with however one exception: the distribution of super creative core is more even in the liberal market economy that we examine.

In extension of the first hypothesis we assert H_{1a}: *Public Provision will be more evenly distributed in CMEs than in LMEs*. This claim is based on the assumption that given the more proactive role of the state within CMEs, and explicit focus on

achieving equity and the universal provision of social security, we would expect less variation within CMEs.

Table 3: about here

Public Provision in Sweden (table 3) displays a less skewed distribution compared to the UK; thus the data supports H_{1a}. As Sweden is a coordinated market economy the government can use public institutions to directly promote development and employment in certain regions. For example this is the case of Visby on Gotland, an island in the Baltic Sea. This island has been subject to investment in public administration to secure job opportunities for the population. Such investments will result in a relatively high concentration of PPI jobs even in remote areas. In combination with a generally high level of employment in the public sector this gives a more even distribution in the CME compared to the LME. Calculating location quotients and pooling the PPI data for Sweden and the UK emphasises the divergence between the two state models: All 70 Swedish regions generate an LQ above one, whereas only 33 of the 87 UK regions score above the overall average.

Growth and the creative class

Florida's theory argues that the creative class are the central pillar for generating growth in a knowledge economy. If labour markets in LMEs are indeed more flexible, career structures more individually-focused and commitment to (and from) any given employer weaker, it would be reasonable to expect the creative class- who are by their very nature typically the most mobile constituent of the labour force- to adjust more quickly to structural changes in the economy. A key way in which this would be apparent would be a more rapid change in location towards those cities or regions which offer increased opportunities for employment and career development. Three hypotheses are put forward and tested in this respect:

H_2: The presence of the creative class will be more strongly associated with employment growth in LMEs than in CMEs

H_{2a}: The presence of the creative class will be more strongly associated with population growth in LMEs than in CMEs

H_{2b}: The presence of the creative class will be more strongly associated with high technology employment growth in LMEs than in CMEs

Table 4: about here

Table 4 demonstrates the correlations between the creative class, the super creative core, creative professionals, and talent, with population growth and employment growth. Both for the creative class and for the super creative core the claim of the hypothesis holds. UK demonstrates stronger relationship between concentration of the creative class and employment growth than Sweden. This counts for both the creative class and the creative core. However, the relationship shifts when creative professionals and talent substitute the creative class and creative core. Such a pattern is likely to arise as least partly due to the more even distribution of the creative professionals and talent in Sweden compared to the UK (table 2), and because employment growth is more equal as well. This is highly linked to the role of the state in the coordinated market economy, which via welfare state services can regulate the demand for jobs in more remote areas of the country orientated towards the creative and talented segment of the workforce.

Next looking at population growth as an indicator of growth it shows that Sweden as a representative of a CME shows stronger correlations on all four creative class variables and therefore does not fit the assumption of hypothesis H_{2a}. Several reasons can be suggested as to why the hypothesis fails to predict the outcome; first, the generous social benefits that the welfare state offers people on maternity and parental leave in Sweden. Each child entitles parents to share the sum total of approximately 400 days of leave. Moreover, childcare provision is typically less expensive than in the UK - all elements that can be expected to have a positive influence on birth rates throughout the country. Looking at fertility rates, the UK and Sweden hold approximately equal values at the national level, but with a more generous parental leave system and cheaper child care institutions the effect is exacerbated in city areas which tend to have a younger age profile, and thus is more strongly associated with the Swedish distribution of the creative and talented work force. A second reason could be that Sweden has one of the most liberal immigration policies in Europe. This

effects urban population growth and thus will have an impact on the relationship between population growth and location of the creative class.

A third possible explanation for the relationship observed is that Sweden to a greater extent than the UK is still undergoing the transition from a manufacturing based economy towards a more knowledge based economy. This transition generates a movement of people from peripheral regions towards the more urban areas. In particular, young people move to cities for higher education and tend to stay on after graduation to seek relevant employment. Thus population growth will be more marked and directed towards the urban regions that also hold the highest concentrations of the creative class– especially if the number of urban regions is low. This is a pattern that can be identified in most Scandinavian countries, and evident in work by Andersen et al. 2010a and Andersen et al. 2010b.

Lastly, hypothesis H_{2b} tests whether the creative class is more strongly associated with employment growth in high-tech industries in a LME compared to a CME. Here we find that the UK generates stronger correlations with the creative class and with creative professionals whereas Sweden presents higher correlations for the creative core and for talent. Consequently our hypothesis is only partly confirmed. It is likely that the higher correlations for the creative core and talent in this respect has to do with the location pattern of high-tech industries in Sweden, where the majority of the high-tech firms are located in proximity to universities and thus will be co-located with especially the creative core. This is less so in the UK, where a greater proportion of such activity is based in provincial cities i.e. away from the largest urban centres.

LMEs reinforce more strongly the institutional, legal and economic structures that are associated with individual risk-taking and entrepreneurship, which is likely to be manifested in observed patterns of new firm formation. In turn, the creative class are put forward as a key driver of new business growth. Thus follows Hypothesis 3 which tests the relationship between creative class people and entrepreneurship: *There will be a stronger association between the localisation of the creative class and levels of new firm formation in LMEs than in CMEs (H_3).* Table 4 also presents information on this relationship, and shows that the correlations are much stronger for the UK than for Sweden. If we challenge this relationship and address only the formation of new

high-tech firms, the LME still shows a stronger association between the creative class and new firm formation, but with significant correlations for both economies. Consequently, we find support for hypothesis H_3, albeit with this result in mind.

Creative class, place quality and attractiveness

Our final three hypotheses are related to the attractiveness of place and the assumption that the creative class is propelled towards places that offer high quality amenities. A key adaptation of the creative class model to the European context is the consideration of high quality public service provision in health care and education as a potential amenity that will be attractive to the creative class. The first claim is that: *The location of the creative class is thus more likely to be positively associated with the public provision index in CMEs than in LMEs* (H_4). Table 5 shows that in Sweden we can identify a positive relationship between the creative class, the creative core, talent and the PPI, and that these relationships are stronger than those observed for the UK. This fits our expectations, although only the creative core demonstrates significant results. However, a negative relationship is identified with Swedish creative professionals and the PPI – but this still fits the hypothesis, as the UK data is more negatively correlated than the Swedish data. Generally however, the correlations are only weak and can be explained by the relatively low variation of the PPI in both Sweden and the UK.

Table 5: about here

Hypothesis 5 is formulated as follows: *The location of the creative class is more likely to be negatively associated with unemployment in LMEs than in CMEs* (H_5). This arises from the perceived preference for higher levels of equity and social justice within CMEs. This claim holds. Though correlations are insignificant for Sweden they show only a weak tendency. The UK on the other hand presents relatively strong correlations indicating that places with low unemployment rates also are the places that hold a relative large share of the creative class.

The last hypothesis is associated with tolerance as a quality that is presumed to be of particular interest of the creative class, who as described above are expected to be more mobile in LMEs. Thus we expect that *the location of the creative class is more*

strongly associated with quality of place in terms of diversity and cultural opportunities in a LME compared to CME (H_6) and here openness to foreigners, bohemians and access to cultural opportunities are introduced indicators of quality of place. With regard to the openness variable, correlations with the three categories of the creative class and with talent are stronger in the UK than in Sweden, although the difference is only marginal. This fits the hypothesis albeit with this reservation- the expectation being that the correlations are significant in both countries. However the two remaining quality of place variables do not fit the hypothesis. Sweden, our representative of a CME, shows stronger correlations for both Bohemians and COI than does the UK as the LME. One explanation for this result could again be the urban hierarchy of Sweden compared to the UK. Relatively fewer large cities results in a concentration of bohemians in these areas; only 3 regions in Sweden (the three with the highest share of the population) have a Bohemian LQ above 1 (i.e. national average), whereas the UK can count 18 such regions. This leads us to suggest that urban hierarchy and population density are extremely important for this group, and thus will influence the correlations obtained.

The COI shows a similar pattern to the one outlined above and thus divergence from the result predicted, but with one important difference: the correlations are relatively weak compared to those for Openness and the Bohemian Index, especially in the case of the UK. Looking at LQs again shows that the UK has 31 out of 87 regions scoring above average concentrations of COI employment, whereas Sweden only has 8 out of 70. This raises the possibility that the COI- and the presence of Bohemians- are not particularly good predictors for the relationship that we are investigating i.e. the quality of place preferences of the creative class and how these will be manifested in LME vs. CME. These variables are particularly sensitive to demographic issues in combination with urban hierarchy; in the Swedish case particularly there are only a few cities with significant numbers of Bohemians and of COI employment and thus co-locational inferences are harder to draw. Thus we can conclude that support for H_6 is only partial, and therefore in need of some further investigation.

Table 6: about here

Finally, table 6 summarises the findings of the empirical analysis in relation to the various hypotheses tested. Overall, these are largely supported albeit with exceptions in the areas of growth outcomes and quality of place. These are issues we return to in the concluding section below.

Conclusions

This paper has discussed the role of political economy as the context within which the creative class thesis may be applied. Previous studies in the field have obtained mixed results; Andersen et al (2010a) and Andersen et al. (2010b) show that within a Scandinavian context the size of regions in terms of population can play an important role. Hansen and Niedomysl (2009) and Niedomysl and Hansen (2010) show that within Sweden the creative class should be considered less mobile than might otherwise be predicted. Moreover, Boschma and Fitsch (2009) and studies from the UK (Clifton 2008; Clifton and Cooke 2009) indicate the relevance of Florida's ideas to the UK and Europe more generally, but not with results as unambiguous as those obtained from the North American research.

Building upon this work, this paper frames the ideas of linkage between creative class presence, quality of place, and regional development outcomes explicitly within a varieties of capitalism perspective. Our results show that the VoC approach has significant value here. For the majority of the hypotheses derived we can find evidence in the empirical material. Hypothesis 2 (overall employment growth) and hypothesis 2_b (high technology employment growth) are only supported with regard to two and three of the creative class variables respectively. One hypothesis (2_a – population growth) is rejected in full, while hypothesis 6 (quality of place) produces somewhat mixed results. In general, this leads us to conclude that the variety of capitalism in question has a significant impact on the workings of the creative class thesis, and thus should be taken into account when the thesis is implemented into local, region and even national development plans and related legislation. The different ways of organising capitalism are likely to play a role for both the 'push' and 'pull' factors that influence the geography of creative knowledge workers. Therefore the findings of this study suggest that socioeconomic dynamics at a number of levels

have a central role to play in understanding regional trajectories of the knowledge economy. In order to gain a better understanding of such dynamics, we would suggest that the issue of mobility between European cities is addressed, to understand the impact of variety of capitalism in an international perspective: For example, does the Scandinavian coordinated market economy have a different attraction effect for creative knowledge workers than do liberal market economies, and can we detect differences in why people move? Is the CME more associated with permanent movement of the creative class, while LMEs are more associated with temporary migration? Such questions require different data than is currently available- both data of a more qualitative character, and quantitative longitudinal panel data.

We suggest that where results do differ from those predicted by applying the VoC framework, these may largely be interpreted via consideration of the relevant regional hierarchies and urban structures. The regional hierarchy (and the more rural areas) of Sweden compared to the UK results in a relative concentration within certain variables; for example the fewer large cities of Sweden results in a polarisation of cultural supply relative to the UK, and this may also be associated with the more even distribution of the Bohemians in the UK. This factor is likely to lead to less distinct results- in this sense the 'regional hierarchy effect' outweighs (or at least mitigates) the 'VoC effect' for these variables. These are issues the specifics of which are beyond the scope of the research presented here, and thus more work is required to unpack. For example, though wholly consistent with the CME / LME typology employed, we are at present limited to data from Sweden and the UK only; one potentially fruitful avenue for future research will therefore be at add other nations to the VoC framework of creative class analysis (or indeed to consider pan-European effects relative to North American creative class outcomes- data availability and consistency being as ever the key limiting factor). An alternative method of unpacking this issue, although again subject to data availability, would be to revisit the spatial units employed in the analysis. If as Florida (2008:221) suggests cities are indeed '…mosaics that offer a range of distinctive and specialized communities attuned to the needs of people at various life stages', then employing a smaller scale may offer a means of re-interpreting the data, particularly for national economies (such as Sweden) that are characterised by relatively high concentrations of certain types of people in a few larger cities.

Conversely, an interpretation of the quality of place results could be that the geographical relationship between the creative class and openness to foreign born people and to bohemians is relatively consistent regardless of what kind of economy is under investigation. This would in turn imply that the creative class are indeed a 'class'- i.e. a coherent group with shared preferences, for which the 'class effect' is stronger than the 'national effect'. Again this an area requiring further research, quite possibly exploring preferences via a qualitative methodology.

However, we may conclude this discussion- albeit with the caveats raised above- by stating that co-ordinated markets tend to flatten urban and knowledge economy regional opportunity, while liberal markets produce spatial 'spikiness.' Moreover, with the trend towards even co-ordinated markets having liberalised in recent decades, these may be beginning to become spikier too.

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Table 1: CME and LME- summary of key differences

	Coordinated Market Economy	Liberal Market Economy
Labour Market	▪ Long-term employment, often with a single employer ▪ Formal rights under co-determination to training, work-organisation and unlimited employment contracts.	▪ Labour markets are deregulated & mobile. Limited, often individual employment contracts. ▪ Widespread labour poaching and 'headhunting'.
Firm Organisation	▪ Consensus decisions, few individual employee incentives. Group reward schemes. ▪ Careers well-defined within single firm, and not short-term performance-based	▪ Financial 'property rights' ownership structures. No co-determination rules. ▪ Strong incentive structures and performance-based compensation. ▪ Rapidly shifting firm competencies.
Financial Ownership	▪ Strong corporate governance rules. ▪ Bank not equity firm financing. ▪ Bank representatives on boards ▪ Long-term, low-risk investment.	▪ Large capital markets (e.g. NASDAQ) fund investment. ▪ Equity-based financing, short- term. ▪ Venture capital.
Inter-firm Relations	▪ Associational relationships to facilitate technology transfer, compensate for lack of individual mobility ▪ Involvement of government and industry associations in setting of standards etc.	▪ Standard market relationships and enforceable formal contracts ▪ Little legal support for 'relational' contracting
Education and Training	▪ High investment in industry-specific or firm-specific skills ▪ Involvement of employer associations and trade unions in education and training policy	▪ High levels of general education ▪ Focus on transferable skills complements fluid labour markets
Innovation	▪ Banks do not fund R&D ▪ Incremental innovation the norm ▪ Niche competition. Few radical Innovations ▪ Rigidities hamper high-tech start-ups.	▪ Investment profile favours novelty and radical innovation. ▪ Disruptive technologies create broad, new global markets. ▪ Start-up friendly.

Table 2: Descriptive data of the distribution of the Creative class in Sweden (2002) and UK (2001)

	Creative Class LQ		Super Creative Core LQ		Creative Professionals LQ		Talent LQ	
	Swe	UK	Swe	UK	Swe	UK	Swe	UK
N	70	87	70	87	70	87	70	87
Mean	0,8681	0,9857	0,8297	0,9922	0,8862	0,9833	0,7187	0,8325
Median	0,8343	0,9875	0,7759	0,9681	0,8620	0,9947	0,6682	0,7817
SD	0,15164	0,19078	0,21798	0,21073	0,14090	0,19419	0,26201	0,29259
Variance	0,023	0,036	0,048	0,044	0,020	0,038	0,069	0,086
Range	0,76	0,92	1,35	1,02	0,87	0,96	1,35	1,46
Minimu m	0,64	0,52	0,48	0,47	0,65	0,53	0,41	0,37
Maximum	1,40	1,44	1,83	1,49	1,52	1,49	1,76	1,83

Table 3: Descriptive data of the distribution of Public Provision in Sweden (2002) and UK (2001)

	PPI	
	Swe	UK
N	70	87
Mean	12,606878	9,281327
Median	12,576231	8,905561
SD	1,3912130	1,5610812
Variance	1,935	2,437
Range	7,9205	6,8616
Minimu m	9,4864	6,2632
Maximum	17,4069	13,1248

Table 4: Bivariate correlations of creative class and growth for Sweden (2002) and the UK (2001)

		Creative class%	Creative core%	Creative professionals %	Talent %
Employment growth rate	*Sweden*	*0,559*	*0,392*	*0,635*	*0,587*
1993 - 2002 (annual average)	UK	0,598**	0,418**	0,623**	0,438**
Population growth 1993-2002	*Sweden*	*0,634***	*0,482***	*0,688***	*0,681***
(%)	UK	0,502**	0,375**	0,511**	0,403**
Share of high-tech employees	*Sweden*	*0,403***	*0,398***	*0,361***	*0,393***
(%)	UK	0,434**	0,368**	0,422**	0,325**
New firms by1000 inhabitants	*Sweden*	*0,209*	*0,197*	*0,195*	*0,258**
2002	UK	0,468**	0,478**	0,417**	0,457**
New high-tech firms by1000	*Sweden*	*0,787***	*0,683***	*0,782***	*0,713***
inhabitants 2002	UK	0,889**	0,707**	0,887**	0,794**

Table 5: Bivariate correlations between the creative class and place attractiveness

		Creative class%	Creative core%	Creative professionals %	Talent %
PPI 2002 (%)	*Sweden*	*0,136*	*0,307***	*-0,025*	*0,237**
	UK	-0,058	0,173	-0,160	0,155
Unemployment rate 2002	*Sweden*	*0,091*	*0,170*	*0,013*	*-0,029*
	UK	-0,503**	-0,388**	-0,506**	-0,393**
Openness to foreigners 2002	*Sweden*	*0,413***	*0,308***	*0,453***	*0,341***
	UK	0,479**	0,386**	0,475**	0,563**
Bohemian Index 2002	*Sweden*	*0,793***	*0,660***	*0,812***	*0,784***
	UK	0,704**	0,628**	0,670**	0,820**
COI 2002	*Sweden*	*0,418***	*0,392***	*0,390***	*0,423***
	UK	0,267*	0,209	0,268*	0,376**

Table 6: Results of tested hypotheses

	Creative class	Creative core	Creative prof.	Talent
H_1: The Creative Class will be more evenly distributed in CMEs than in LME*	+	÷	+	+
H_2: The presence of the Creative Class will be more strongly associated with employment growth in LMEs than in CMEs	+	+	÷	÷
H_{2a}: The presence of the Creative Class will be more strongly associated with population growth in LMEs than in CMEs	÷	÷	÷	÷
H_{2b}: The presence of the Creative Class will be more strongly associated with high technology employment growth in LMEs than in CMEs	+	+	+	÷
H_3: There will be a stronger association between the localisation of the Creative Class and levels of new firm formation in LMEs than in CMEs	+	+	+	+
H_4: The location of the Creative Class is more likely to be positively associated with the public provision index in CMEs than in LMEs	÷	+	÷	+
H_5: The location of the Creative Class is more likely to be negatively associated with unemployment in LMEs than in CMEs	+	+	+	+
H_6: the location of the creative class is more strongly associated with quality of place in terms of diversity and cultural opportunities in a LME compared to CME	+/÷	+/÷	+/÷	+/÷

***H_{1a}:** Public Provision will be more evenly distributed in CMEs than in LMEs: Supported