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&
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present

SWEDEN IN THE CREATIVE AGE

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Executive Summary

Global competition faces us with new rules and an ever changing scenario. The ability to compete and prosper in the global economy goes beyond trade in goods and services and flows of capital and investment. Instead, it increasingly turns on the ability of nations to attract, retain and develop creative people, because creativity is what drives economic growth today.

This report extends the concepts and indicators introduced in The Rise of the Creative Class and in Europe in the Creative Age to the Swedish regional context. It analyses Swedish regions and cities' competitiveness in the new Creative Economy by building indicators that capture their performances on the dimensions of Talent, Technology and Tolerance - the "3Ts" of economic development.

The results emerging from the research illuminate us about the profound social and economic transformation that has been taking place in Sweden during the past fifteen years.

The Swedish economy has been increasingly transitioning towards an economic system dominated not just by technological products, but increasingly by creative, innovative processes and services, as shown by occupational data.

35% of the Swedish workforce is engaged in creative types of occupation, belonging to what we call "Creative Class": managers, professionals, researchers, artists and other associated professional figures.

However, such transformation and results are not evenly spread out in the country.
Sweden exhibits a very high degree of concentration in its creative resources: 30% of all Swedish Creative Class is located in the Stockholms län, and almost 60% of all Swedish Creative Class is concentrated in three regions: Stockholms län, Skåne län (the Malmö-Lund region), and Västra Götalands län (the Göteborg region).

Innovation activities also appear strongly concentrated. Although several smaller regions exhibit very innovative economic structures, still, in absolute values, about 47% of all high tech patents applications are concentrated in the Stockholm area.

These and other findings suggest that large, dense, and well connected city-regions have a clear advantage in their ability to attract, leverage high stocks of creative talent, and to nurture the necessary social and economic diversity to sustain their growth.

The three regions around Stockholm, Göteborg, and Malmö attract 64% of all the foreign born population (while they account for 50% of national population).

These regions also have a special edge in attracting people engaged in artistic and performing activities (what we called "bohemians"). Stockholm alone accounts for 43% of the Swedish total "bohemians", and if we add the Västra Götaland and Skåne regions, the three of them make up for about 70% of the Swedish Total.

Smaller and peripheral regions do have some competitive edge based on good technological infrastructure (high tech industry and some research activities).

However, in some cases, high tech industry has been mostly focused on manufacturing, while failing to develop more advanced high tech services, and a more diversified social and economic fabric. Such regions will face important

challenges as technology manufacturing is increasingly becoming a less critical and often outsourced activity.

The national education policies pursued during the 1990s seem to have benefited the human capital stocks of both large and small regions, but more still needs to be done in order to both sustain the growth of large regions on one hand and revitalize peripheral areas by connecting them to the larger urban areas on the other.

The technological industry has created an important base on which Sweden has been able to build a strong innovative capacity and to bring its productivity levels among the highest in the Western world. However, it will be Sweden's ability to further develop broader and more diversified economic activities based on its tremendous innovative and creative capabilities that will determine the sustainability of its growth in the future.

1. Introduction

We are going through a major transformation of our economies. Technologies, knowledge, the increasing degree of interconnectedness and globalization have enabled people and companies to widen their geographical scope, and to push product development and service production into new areas.

Human Creativity is the engine of all these changes, the driving force that continuously moves the frontiers of economic and technological development. The competition for talent has thus become the critical source of competitive advantage. This report studies the ongoing changes that have taken place in Sweden over the last 15 years in light of the new global economic system.

Not all countries and regions are equally positioned and equipped to compete in this scenario. The dynamics of economic growth and development in the past years have shown us unexpected and amazing patterns. It is not as much the availability of raw material and physical inputs, as it is the ability to stimulate and enhance the creativity of their citizens that counts in today's economy.
Nations and regions that are able to create such climates are able to extract the best out of their people and they are magnets for creative and talented people from other parts of the world. These nations and regions are the ones that have managed to nurture and develop three fundamental dimensions for economic development: Talent, Technology and Tolerance, or the "3Ts of economic development"[1].

Past research on US cities and regions has showed how the ability (or inability) to nurture these three elements have led certain regions to excel and grow in the past decades, while driving others towards rapid decline. Research on European countries has also shown interesting and similar results. It is not the traditional economic powers like France or Germany that lead the way in the new economic system dominated by creativity and innovation, but rather a group of smaller, Nordic countries headed by Sweden[2] .

As shown by those results, Sweden has a good pool of talented people, highly educated workforce, a great technological development and infrastructure, and an innovative industrial context. Most importantly, it seems to have an open and tolerant social context which supports individual creativity better than the more traditional and hierarchic social structures of old European societies.

But what is behind this success? What are the secrets of the Swedish performance and how sustainable are they in the future? The present study is a first attempt to analyze the sources and the nature of Swedish competitive advantage at the regional and city level. It aims at understanding how the potential of Swedish competitiveness has been - and is being - deployed and leveraged across the country, where do the main strengths lies and where the hardest challenges will be.

1 See R. Florida, The Rise of the Creative Class, Perseus Group Books. New York, 2002
2 R.Florida and I.Tinagli, Europe in the Creative Age. Demos, London, 2004

It is only by looking inside Sweden, analyzing and comparing its regions and cities that we can answer these questions. After all, a substantial part of the competition for talent takes place at the local level. People live and work in cities and communities and it is from these communities that they draw stimulation, new knowledge, creativity, and well being. It is only by studying the regional dynamics inside a country that we can better understand the sources of its competitive advantage and its main challenges.

This report builds upon the "3Ts" theory of economic development advanced in "The Rise of the Creative Class" and applied in the analysis of European countries presented in "Europe in the Creative Age". The report uses the 3Ts framework to analyze the creative potential of Swedish cities and regions. It assesses Swedish cities' technology base, by measuring the presence and structure of high tech industry, and the propensity to innovation of the industrial system. But it also evaluates and measures other critical factors for economic development like Talent, intended as the availability of a pool of talented and creative people, and Tolerance. By tolerance we mean the cultural openness of a region, the diversity and richness of the cultural background, and the acceptance of different lifestyles – an element that creates the underlying conditions to attract and mobilize creative assets.

By measuring and analyzing the developments of Talent, Technology and Tolerance in all of the 21 Swedish's regions (län) and the 290 municipalities[3] , this report provides important tools to identify and understand social and economic dynamics within Sweden and to outline the main challenges and possibilities that lie ahead. The research has been conducted in collaboration between Creativity Group Europe and the School of Business, Economics and Law at Göteborg University.

3 For more information about the structure of Swedish territory, regions and cities, see Appendix I.

2. The Swedish Talent Index

The Swedish Talent Index measures Swedish regions' capacity in terms of highly skilled and creative human resources. The Talent Index is composed by three indicators: the Creative Class[4] , that is the share of workforce engaged in creative occupations like scientists, professionals, managers, artists and so forth (see Appendix II for details), the Human Capital Index, that is the share of population with University degree; and the Researcher Index, represented by the number of people in R&D institutions per 10,000 persons in the workforce.
Results of the overall Talent Index are shown in Table 1.

Table 1. The Talent Index

Län	Overall Talent Index	Researchers (rank)	Human Capital (rank)	Creative Class (rank)
1. Uppsala län	0,817	1	2	2
2. Stockholms län	0,713	2	1	1
3. Skåne län	0,370	3	4	3
4. Västra Götalands län	0,326	5	5	4
5. Västerbottens län	0,322	4	3	6
6. Östergötlands län	0,279	6	6	5
7. Västmanlands län	0,167	20	12	7
8. Hallands län	0,142	15	7	14
9. Kronobergs län	0,139	15	11	9
10. Västernorrlands län	0,138	10	15	8
11. Norrbottens län	0,134	8	9	12
12. Örebro län	0,131	18	12	10
13. Blekinge län	0,130	9	8	15
14. Jämtlands län	0,125	18	10	11
15. Värmlands län	0,095	12	16	16
16. Södermanlands län	0,079	20	17	13
17. Gotlands län	0,069	7	14	21
18. Jönköpings län	0,059	11	18	18
19. Dalarnas län	0,056	12	20	17
20. Kalmar län	0,030	14	19	20
21. Gävleborgs län	0,027	15	21	19

The main Swedish urban areas are topping the Talent rank, headed by Uppsala, whose position is boosted by the highest share of researchers on total workforce of all Sweden: 66.5 researchers on every 10,000 workers versus a Swedish average of 7.5. On the other hand Stockholm derives its major strengths by its extraordinaire ability to attract and nurture high levels of creative and human capital. It is worth mentioning that all the top six regions in the ranking have large universities and research facilities.

4 Creative Class is a Service Mark of Richard Florida.

Areas with smaller and less established academic environments exhibit more difficulties in attracting and nurturing a large pool of Talent. Similar trends have been found not only at the län level, but also at the municipality level: municipalities that belong to larger urban areas/regions, endowed with top notch research and university facilities, do seem to have an advantage in nurturing and attracting talent. The following sections show in greater details the performances of Swedish regions along the three Talent Indicators.
Full data and Tables on the 290 municipalities are to be foundin Appendix IV.

Creative Class

Creative Class is the share of local workforce engaged in conceptual and creative types of occupations, like managers, scientists, architects, engineers, artists, entrepreneurs, and many others. The creative class is a crucial asset to compete in the new economic system.
Previous research has shown consistent high correlations between the presence of a thriving creative class and regional performance. Therefore, assessing the concentration and distribution of creative class is important for a better understanding of the creative and innovative potential of countries and regions.

The notion and definition of Creative Class was first introduced in the book "The Rise of the Creative Class", and includes a broad range of occupations. Due to difficulties in elaborating and comparing international statistics, later research has introduced a modified definition of Creative Class, which excludes the so called "creative technicians", that is all associate professionals, creative technical occupations whose content and definition may vary and thus be more difficult to correctly classify across countries (see Appendix II for details).
Table 2 shows the shares of creative class according both the original and the "restricted" definition. From now on, however, we will use only the original and broader definition of creative class.

Table 2. Creative Class Shares, with and without technicians and associates

Län	Total Creative Class		Creative Class without technical occupations	
	N.	As share of workforce	N.	As share of workforce
1. Stockholms län	380.038	44,6%	269.731	31,7%
2. Uppsala län	41.785	37,8%	30.009	27,2%
3. Skåne län	150.099	34,8%	104.461	24,2%
4. Västra Götalands län	218.821	34,5%	140.235	22,1%
5. Östergötlands län	55.208	33,9%	38.659	23,8%
6. Västerbottens län	33.298	32,2%	23.322	22,6%
7. Västmanlands län	32.166	32,1%	20.664	20,6%
8. Västernorrlands län	30.539	30,8%	19.694	19,9%
9. Kronobergs län	23.287	30,2%	14.584	18,9%
10. Örebro län	33.092	30,1%	21.870	19,9%
11. Jämtlands län	14.581	29,4%	9.848	19,9%
12. Norrbottens län	28.666	29,2%	19.539	19,9%
13. Södermanlands län	27.059	29,0%	18.356	19,7%
14. Hallands län	28.779	28,9%	18.220	18,3%
15. Blekinge län	17.156	28,9%	11.124	18,7%
16. Värmlands län	29.848	28,8%	19.614	19,0%
17. Dalarnas län	31.025	28,3%	20.892	19,1%
18. Jönköpings län	39.753	28,0%	25.086	17,6%
19. Gävleborgs län	29.733	27,6%	19.479	18,1%
20. Kalmar län	24.244	26,6%	15.660	17,2%
21. Gotlands län	5.553	26,2%	4.139	19,6%
Total Sweden	*1.274.730*	*34,9%*	*865.186*	*23,7%*

The results on the Creative Class Index show how the top performing regions tend to be among the largest regions in Sweden, thus suggesting that a region's size and density may have a role on the ability to develop creative occupations. As a matter of fact, almost 60% of the entire Swedish creative class is concentrated in three regions: Stockholm, Skåne, and Västra Götaland. Although smaller in size, Uppsala län also counts on very high concentration of creative class, most likely thanks to its close physical proximity to Stockholm.
In fact, Stockholm and Uppsala can almost be seen as one larger urban area, given the easiness of commuting from one to the other. This area is also rapidly merging with the so-called Mälardal-området, with Västmanlands län and parts of Södermanlands län as important outer geographies. This peculiar geographic location and the possibility to create a large connected area seem to represent a significant advantage in attracting and retaining the creative class.

Even at the municipality level, it is clear that being part of a large and dense urban region provides a strong advantage in attracting and retaining high shares of creative class. As shown in Table 4, the top 20 municipalities in terms of concentrations of creative class tend to belong to the largest city-regions in Sweden (a full list of creative class concentrations in the 290 Swedish municipalities is to be found in Appendix IV).

Table 3. Creative Class Shares and Labor Force Structure (Län level)

Län	% Creative Class	% Service class	% Working class	% Agriculture	Total Work Force (2003)
1. Stockholms län	44,6%	42,3%	12,7%	0,4%	851.489
2. Uppsala län	37,8%	42,9%	18,4%	0,8%	110.418
3. Skåne län	34,8%	42,5%	21,5%	1,2%	431.475
4. Västra Götalands län	34,5%	40,8%	24,1%	0,7%	634.279
5. Östergötlands län	33,9%	41,4%	23,7%	1,0%	162.746
6. Västerbottens län	32,2%	43,0%	23,9%	0,9%	103.423
7. Västmanlands län	32,1%	40,5%	26,7%	0,6%	100.086
8. Västernorrlands län	30,8%	44,2%	24,1%	0,9%	99.158
9. Kronobergs län	30,2%	41,0%	28,1%	0,8%	77.172
10. Örebro län	30,1%	42,6%	26,5%	0,8%	109.830
11. Jämtlands län	29,4%	47,5%	21,9%	1,2%	49.604
12. Norrbottens län	29,2%	45,8%	24,3%	0,8%	98.227
13. Södermanlands län	29,0%	43,1%	26,8%	1,0%	93.147
14. Hallands län	28,9%	44,4%	25,2%	1,5%	99.438
15. Blekinge län	28,9%	42,5%	27,7%	1,0%	59.395
16. Värmlands län	28,8%	43,3%	26,8%	1,1%	103.471
17. Dalarnas län	28,3%	43,5%	27,2%	1,0%	109.590
18. Jönköpings län	28,0%	39,9%	31,5%	0,6%	142.141
19. Gävleborgs län	27,6%	43,0%	28,4%	1,0%	107.585
20. Kalmar län	26,6%	40,7%	31,3%	1,4%	91.262
21. Gotlands län	26,2%	51,4%	20,1%	2,2%	21.155
Total Sweden	*34,9%*	*42,3%*	*22,0%*	*0,8%*	*3.655.091*

Table 4. Creative Class shares, Top 20 municipalities

Municipality	län	Creative Class %	Municipality	län	Creative Class %
1. Solna	(Stockholms)	55,74	11. Täby	(Stockholms)	41,59
2. Danderyd	(Stockholms)	53,57	12. Nacka	(Stockholms)	41,08
3. Stockholm	(Stockholms)	49,52	13. Lidingö	(Stockholms)	40,84
4. Lund	(Skåne)	49,50	14. Upplands Väsby	(Stockholms)	40,53
5. Sundbyberg	(Stockholms)	46,87	15. Malmö	(Skåne)	40,13
6. Mölndal	(Västra Götalands)	45,89	16. Huddinge	(Stockholms)	39,70
7. Sollentuna	(Stockholms)	44,59	17. Arboga	(Västmanlands)	38,83
8. Uppsala	(Uppsala)	43,36	18. Lomma	(Skåne)	38,53
9. Linköping	(Östergötlands)	42,22	19. Karlstad	(Värmlands)	38,05
10. Göteborg	(Västra Götalands)	42,04	20. Umeå	(Västerbottens)	37,95

The Västra Götaland region presents some interesting peculiarities. Results about this län tend to be very close to the Swedish average, both in creative class shares and in other relevant indicators. As a matter of fact, this area seems to reflect in many ways the overall structure of Swedish economy and geographic layout. This region counts on a very large city (Göteborg), with a strong industrial and knowledge basis, but, at the same time, it also includes many less densely populated areas (mostly located in the north part of the region) along with fishing and agricultural areas. This structure is responsible for a highly fragmented economic geography and heterogeneous results across municipalities that mirror the heterogeneity we find across Swedish regions.

Table 3 also shows the importance of the creative class in the Swedish labor structure, accounting for shares of local employment that range from over one fourth for the most traditional regions up to almost 45% of total workforce in the Stockholm area. These figures are a clear symptom of the economic transformation that has been occurring in Sweden in the past years. Such shift towards a more "creative" type of economy has also had an impact on the relevance of service and supporting activities. In fact, we can see how these types of occupations have become the largest share of local employment even in smaller and peripheral regions.

Tabble 5. Changes in Creative Class Shares, 1990-2003

Län	Creat. Class (CC) Trend Score	Change in CC as share of pop.*
1. Stockholms län	1	5,41
2. Västra Götalands län	0,772	4,12
3. Jönköpings län	0,761	4,06
4. Kronobergs län	0,736	3,91
5. Blekinge län	0,669	3,53
6. Jämtlands län	0,644	3,39
7. Västernorrlands län	0,569	2,96
8. Östergötlands län	0,547	2,84
9. Norrbottens län	0,533	2,76
10. Gotlands län	0,510	2,63
11. Dalarnas län	0,509	2,63

Län	Creat. Class (CC) Trend Score	Change in CC as share of pop.*
12. Västerbottens län	0,507	2,61
13. Kalmar län	0,468	2,39
14. Gävleborgs län	0,452	2,30
15. Örebro län	0,452	2,30
16. Skåne län	0,431	2,18
17. Värmlands län	0,427	2,16
18. Västmanlands län	0,310	1,50
19. Södermanlands län	0,101	0,31
20. Uppsala län	0,051	0,03
21. Hallands län	0	-0,26
Total Sweden		*3,38*

* Population between 16 and 74 years old.
NB. The shares have been calculated on population instead of workforce due to comparability issues between 1990 and 2003 workforces.

Looking at the changes in the share of creative class from 1990 to 2003 (table 5), we can see that the shift in the economic structure has been particularly evident in Stockholm, further enhancing its primacy as talent and creative magnet in Sweden.

However, the creative class growth data also point out the ability of regions like Västra Götaland to successfully move from a more traditional industrial structure towards forms of economic organization that are aligned to the recent developments of the creative economy.
Regions like Jönköpings län, Kronobergs län and Blekinge län, whose stock of creative class is, in absolute values, still quite low, yet show signs of positive dynamics over the past years.
The low trend registered by the Uppsala län may seem surprising giving the growth that has characterized the region in the past decade. As a matter of fact, the absolute number of people engaged in crea-

tive occupations has increased by 12.5%, but, since population has increased by the same amount, the share of creative class has remained the same.
Given the increasing importance of the creative class on Swedish regional economy, there is a need to know more about this group of qualified workers: its needs, its attitudes and preferences. How do these people relate to the cities in which they live, which areas do they prefer, what kind of urban features attract and engage them? These questions cannot be fully addressed by aggregated economic and geographical analysis, but need further research at the specific local level.
The SOM-Institute at the University of Göteborg has conducted a survey aimed at knowing more about the characteristics of the creative class in Göteborg. The analysis was conducted by Rudolf Antoni, who kindly provided a synthesis of the major results emerging from the Survey reported in Box 1.

BOX1: A profile of the Creative Class - evidence from Göteborg

The survey conducted by the SOM-Institute at the University of Göteborg focuses on the attitudes, motivations and lifestyle of the creative class in the city of Göteborg and how they differ from other groups of city residents.
The creative class emerges from the survey as a highly mobile group, especially the super creative core[5] . They show much weaker attachment to the city they live in: one out of five feel most at home in a context greater than Sweden (Scandinavia, Europe or the world as a whole), 40% of the super creative core would consider moving to a different part of Sweden and 50% would consider moving to a different country. Compared to the rest of the creative class and non-creative professionals this is about twice as many.
More than 80% of the creative class are not Göteborg-native but have moved there, and about two thirds of the creative class have studied at the local universities. This indicates that both the Göteborg University and Chalmers University of Technology are important talent magnets for the city of Göteborg.
When asked how important different things are for the future development of the region, higher education and research facilities top the list for the creative class. This is followed by the automotive industry which has a prominent position in Göteborg. Also among the top priorities are information technology, leisure environment, culture, entertainment and events. In other words, the creative class in Göteborg thinks it is important for the region to invest in quality of place. They want to be surrounded by talented people, cutting edge science and they want access to a high quality job market. But they also value their spare time and therefore prioritize investments in a creative and fun leisure environment.
The creative class is mostly concentrated in the central parts of Göteborg, but not necessarily the most upscale areas. The creative class tends to reside in areas with a lot of old buildings, mostly renovated and modernized but not all of them; areas with many cafés and restaurants but not nightclubs; areas close to the harbour with a direct link to the working class history of the city.

Rudolf Antoni
SOM-Institute, Göteborg University

5 The "Super-creative core" is a subset of the creative class that includes scientists and engineers, university professors, poets and novelists, artists, entertainers, actors, designers, and architects, as well as the "thought leadership" of modern society: nonfiction writers, editors, cultural figures, think-tank researchers, analysts, and other opinion-makers.

Human Capital

The Human Capital Index is based on the percentage of population in working age (16-74) with university education (studies of at least 3 years).
Not surprisingly, the results on this indicator suggest that regions with large universities and research facilities have an advantage in their ability to build and retain a consistent stock of human capital in the area. In fact, all the regions in the top positions have relevant university institutions. Also, as noticed on the creative class indicator, the proximity of the two areas of Stockholm and Uppsala seem to represent a valuable asset in nurturing and attracting human capital.

However, if we look at the human capital trends since 1990, we can see quite an impressive improvement both in large and small areas. The shares of human capital have basically doubled all over Sweden, moving from an average of 8.2% of the population to a 15.7% of the population.

This upgrade in the education level of Swedish population might also be related to a specific policy pursued by the Swedish government in the early 1990s.
Regional university colleges (the so called Högskolor) were created in several parts of Sweden. Thanks to the support of regional and local governments and the business community, some of these colleges have grown over time and gained full university status.

These kinds of processes have been very important for regions such as Kronobergs and Jämtlands län. These policies may have had an important role to boost and enhance human capital creation also in the regions which had early universities, like Västerbotten, for example.
In fact, Västerbottens län made a substantial change in the past fifteen years: from being a region below the national average in terms of human capital, it has become a region with an “endowment” of human capital well above the Swedish average. See table 6.

Table 6. Human Capital, Index and Trends 1990-2005

Län	HC score 2005	*Human Capital 2005*	*Human Capital 1990*	*Total change (in%points)*	HC TREND Rank
1. Stockholms län	1,000	21,51%	12,34%	9,17	1
2. Uppsala län	0,819	19,54%	11,80%	7,75	4
3. Västerbottens län	0,527	16,37%	7,82%	8,56	2
4. Skåne län	0,517	16,26%	8,32%	7,94	3
5. Västra Götalands län	0,444	15,46%	7,84%	7,62	5
6. Östergötlands län	0,351	14,45%	7,47%	6,98	6
7. Hallands län	0,273	13,61%	6,82%	6,79	7
8. Blekinge län	0,225	13,08%	6,33%	6,76	8
9. Norrbottens län	0,209	12,91%	6,51%	6,40	10
10. Jämtlands län	0,201	12,82%	6,71%	6,12	14
11. Kronobergs län	0,198	12,79%	6,35%	6,44	9
12. Örebro län	0,182	12,61%	6,40%	6,22	11
13. Västmanlands län	0,182	12,61%	6,46%	6,15	13
14. Gotlands län	0,172	12,51%	6,78%	5,74	18
15. Västernorrlands län	0,150	12,27%	6,09%	6,18	12
16. Värmlands län	0,135	12,11%	6,07%	6,04	15
17. Södermanlands län	0,083	11,54%	6,08%	5,46	20
18. Jönköpings län	0,072	11,42%	5,62%	5,81	17
19. Kalmar län	0,065	11,35%	5,47%	5,87	16
20. Dalarnas län	0,049	11,17%	5,83%	5,33	21
21. Gävleborgs län	0,000	10,64%	5,17%	5,47	19
Total Sweden		*15,69%*	*8,18%*	*7,51*	

Researchers (people in R&D Institutions)

The researchers' indicator consists of the share of workforce employed in research and development companies and institutions, including university departments and research centers. The variable is a combined measurement of the occupational classification and the SNI (Svensk Näringsgrensindelning) business statistics classification.

Table 7. Researchers per 10,000 workforce

Län	Researchers (score)	Res. per 10,000 workforce
1. Uppsala län	1,000	66,50
2. Stockholms län	0,140	9,95
3. Skåne län	0,127	9,15
4. Västerbottens län	0,115	8,32
5. Västra Götalands län	0,084	6,32
6. Östergötlands län	0,069	5,29
7. Gotlands län	0,036	3,12
8. Norrbottens län	0,033	2,91
9. Blekinge län	0,021	2,12
10. Västernorrlands län	0,017	1,90
11. Jönköpings län	0,011	1,50
12. Värmlands län	0,008	1,30
12. Dalarnas län	0,008	1,32
14. Kalmar län	0,006	1,18
15. Kronobergs län	0,005	1,08
15. Hallands län	0,005	1,13
15. Gävleborgs län	0,005	1,12
18. Örebro län	0,001	0,86
18. Jämtlands län	0,001	0,87
20. Södermanlands län	0,000	0,77
20. Västmanlands län	0,000	0,80
Total Sweden		*7,49*

As observed for other Talent indicators, large city-regions show strong positions on this indicator as well. The presence of large private companies (who are most likely to invest in research and development) and/or the existence of large and established universities are the primary factors that drive the share of researchers.

3. The Swedish Technology Index

The Swedish Technology Index measures the development of high-tech industrial infrastructure and innovation propensity in Swedish regions. It is composed by three indicators: the Innovation Index, represented by the number of patent applications per 10,000 inhabitants, the High Tech Innovation Index, measured by number of high-tech patent applications per 10,000 inhabitants, and the High Tech Industry Index, which captures the relevance of high tech industry on the local economy.

To improve the understanding of local industry structure and dynamics, we divided the high tech industry index into three sub-indices: *"Hardware and Physical Products"*, which includes all high tech manufacturing activities; *"Software and Services"*, comprehensive of software development and technical services, and *"Telecommunications and Audio-Visual production"*. More detailed information and results on this analysis in the following sections.

The results on the overall Technology Index calculated for the 21 läns are shown in table 8, while the positions of the 290 municipalities along the Technology Index are in Appendix IV.

Table 8. The Technology Index

Län	Technology Index	Innovation (rank)	High Tech Innovation (rank)	High Tech Industry (rank)
1. Stockholms län	0,993	2	1	1
2. Uppsala län	0,618	3	2	4
3. Västmanlands län	0,558	4	5	3
4. Östergötlands län	0,521	9	4	2
5. Skåne län	0,505	6	3	6
6. Gävleborg län	0,498	1	12	12
7. Örebro län	0,389	5	6	10
8. Västra Götalands län	0,367	8	8	7
9. Västernorrlands län	0,361	7	13	5
10. Norrbottens län	0,260	11	7	17
11. Västerbotten län	0,258	14	11	10
12. Jämtlands län	0,250	15	15	8
13. Blekinge län	0,243	16	9	14
14. Södermanlands län	0,222	12	17	9
15. Jönköpings län	0,221	10	20	15
16. Värmlands län	0,218	13	14	13
17. Hallands län	0,161	17	10	20
18. Kronobergs län	0,153	19	18	16
19. Kalmar län	0,132	20	16	18
20. Dalarnas län	0,116	18	19	19
21. Gotlands län	0,000	21	21	21

The Technology Index shows the good performance of relatively small areas along with some of the large city-regions.

The most interesting examples are Västmanlands län and Gävleborgs län, which manage to score well on the Index thanks to their good concentration of high tech industries.
In fact, Västmanlands län hosts one of the world's leading engineering companies, ABB, located in Västerås, and, similarly, Gävleborgs län is home of a very important high tech engineering company, Sandvik, located in the small city of Sandviken in Gävleborg.

These kinds of results suggest that traditional industrial areas still play a role for the technological development of the country, although the low levels of human capital and creative class in many of these regions raises questions about their ability to remain important engines of technology growth in the future.

Innovation Index

The Patent indicator is based on the numbers of applications to the Swedish Patent Office to register new products. The Index is intended to provide a measure of the "innovativeness" propensity of the economic system. Results on the Patent indicator, shown in table 9, indicate that some of the smaller regions have quite innovative economic and industrial systems.

Particularly interesting is the case of Blekinge län: a rather small and peripheral region that has invested into high-tech activities and has seen a significant increase in its innovative capabilities. The positive trend is especially encouraging in the face of the overall negative trend in patenting propensity registered in Sweden between 1990 and 2005. Although with different degrees, 80% of Swedish läns experienced a decline on this dimension[6]. Among the regions that experienced the strongest decline we find: Västmanlands län, Hallands län, and Uppsala län. While the regions that show a positive trend, besides the above mentioned Blekinge, are: Norrbottens län, Västernorrlands län and Örebro län.

Table 9. Innovation, Index and Trends 1990-2005

Län	Innovation Index	Patents per 10,000 pop. (2005)	Patents per 10,000 pop. (1990)	Total Change (in%points)	Innovation Trend rank
1. Gävleborgs län	1,000	4,89	5,22	-0,33	6
2. Stockholms län	0,979	4,80	5,46	-0,65	9
3. Uppsala län	0,570	3,09	5,10	-2,01	19
4. Västmanlands län	0,564	3,06	6,27	-3,21	21
5. Örebro län	0,538	2,95	2,46	0,50	4
6. Skåne län	0,492	2,76	2,99	-0,22	5
7. Västernorrlands län	0,421	2,46	1,95	0,51	3
8. Västra Götalands län	0,350	2,17	3,46	-1,30	17
9. Östergötlands län	0,344	2,14	2,83	-0,69	10
10. Jönköpings län	0,332	2,09	3,14	-1,05	16
11. Norrbottens län	0,260	1,79	1,10	0,69	2
12. Södermanlands län	0,225	1,64	2,03	-0,39	8
13. Värmlands län	0,218	1,61	2,37	-0,76	12
14. Västerbotten län	0,213	1,59	2,58	-0,99	15
15. Jämtlands län	0,209	1,57	2,36	-0,78	13
16. Blekinge län	0,198	1,53	0,73	0,80	1
17. Hallands län	0,168	1,40	4,16	-2,76	20
18. Dalarnas län	0,145	1,31	2,01	-0,70	11
19. Kronoberg län	0,141	1,29	2,81	-1,52	18
20. Kalmar län	0,130	1,24	2,20	-0,96	14
21. Gotlands län	0,000	0,70	1,05	-0,35	7
Total Sweden		*2,78*	*3,52*	*-0,74*	

6 It is worth remembering that patent applications can change considerably from one year to another.

High Tech Innovation Index

The High Tech Patent indicator is based on the patent applications limited to high technology products (information and communication technologies, pharmaceuticals and biotechnological innovations, etc.). It is intended to capture the more technological and "pioneering" type of innovation. Results are shown in Table 10.

Table 10. High Tech Innovation, Index and Trends 1990-2005

Län	HT Innovation Index	HT Patents per 10,000 pop (2005)	HT Patents per 10,000 pop (1990)	Total Change	HT Innovation Trend rank
1. Stockholms län	1,000	1,35	1,24	0,11	6
2. Uppsala län	0,779	1,05	1,60	-0,55	21
3. Skåne län	0,551	0,74	0,49	0,26	3
4. Östergötlands län	0,427	0,58	0,47	0,11	7
5. Västmanlands län	0,369	0,50	0,93	-0,43	20
6. Örebro län	0,297	0,40	0,37	0,03	11
7. Norrbottens län	0,294	0,40	0,11	0,28	2
8. Västra Götalands län	0,286	0,39	0,35	0,04	10
9. Blekinge län	0,246	0,33	0,00	0,33	1
10. Hallands län	0,233	0,31	0,43	-0,12	17
11. Västerbottens län	0,230	0,31	0,12	0,19	4
12. Gävleborg län	0,188	0,25	0,28	-0,02	15
13. Västernorrlands län	0,182	0,25	0,11	0,13	5
14. Värmlands län	0,136	0,18	0,11	0,08	8
15. Jämtlands län	0,117	0,16	0,15	0,01	12
16. Kalmar län	0,095	0,13	0,08	0,05	9
17. Södermanlands län	0,085	0,11	0,31	-0,20	19
18. Kronobergs län	0,083	0,11	0,17	-0,06	16
19. Dalarnas län	0,081	0,11	0,10	0,01	13
20. Jönköpings län	0,067	0,09	0,22	-0,12	18
21. Gotlands län	0,000	0,00	0,00	0,00	14
Total Sweden		*0,60*	*0,53*	*0,07*	

As expected, regions endowed with large universities show an edge on this dimension: the Stockholm, Uppsala, and Skåne regions are, in fact, in the top three positions.
However, relatively good performances are shown also by some smaller regions like Örebro län, Norrbottens län and Blekinge län. The investments made in the high tech sectors and in institutions like the Luleå Institute of Technology in Norrbotten might be a possible explanation for the results. The presence of a strong healthcare sector and of established medical research may also have an impact in these regions.

As opposed to the trend in overall patent applications, data on trends on high tech patents show a slightly positive change for the vast majority of Swedish läns, a result that shows how Sweden has

been maintaining its technology innovativeness over the years.
The positive results on high tech patenting are particularly evident not only in the regions of Blekinge, Norrbotten, and Västernorrland (which have positive results even in non-high tech types of patents) but also in regions like Skåne and Västerbottens län, which had instead registered a negative trend on the overall patents. Such trend seems to suggest a shift from generic or traditional type of innovation to a more technological type of innovative activity.

High Tech Industry Index

The diffusion and concentration of High Tech Industry is a very important indicator of the "technological" infrastructure of a place. As such, this measure is frequently used in various types of research on regional innovation and growth.

The definition of high tech industry is usually pretty broad, and includes activities that range from production to consulting and other technical services. These aggregates have pros and cons. On one hand, the overall "High Tech Industry Index" has the virtue of synthesizing technological capabilities in one measure. On the other hand, though, we miss valuable information about the actual structure and characteristics of the local technological infrastructure. Therefore, we decided to split the High Tech Industry Index into three main components.

The first one is called "Hardware and Physical Products" (HW), and it measures the concentration of production of physical high tech products, like computers, semiconductors, electronic and microelectronic devices and products, pharmaceuticals, etc.
The second component is called "Software and Services" (SW), and it measures the concentration of activities related to software development and high tech services like consulting, data management and analysis, etc.

Finally, the third component includes all the activities related to telecommunications and audio-video production and distribution and is called "Telecommunications and Audio-Visual" (TLC). Table 11 shows both the overall rank on the high tech index and the composition of high tech employment according to the above mentioned classification.

Table 11. High Tech Industry Index and composition of high tech employment

			Composition of High Tech Empolyment		
Län	**HT Industry Index**	**% of High Tech Industry on Total Workforce**	***Hardware & physical products***	***Software & services***	***Telecom & Video***
1. Stockholms län	1,000	8,4%	28,8%	54,1%	17,1%
2. Östergötlands län	0,791	6,8%	64,5%	28,9%	6,6%
3. Västmanlands län	0,741	6,5%	72,3%	22,6%	5,1%
4. Uppsala län	0,506	4,7%	52,4%	41,2%	6,4%
5. Västernorrlands län	0,479	4,5%	27,7%	40,6%	31,7%
6. Skåne län	0,472	4,5%	39,3%	48,6%	12,1%
7. Västra Götalands län	0,466	4,4%	37,9%	48,0%	14,2%
8. Jämtlands län	0,425	4,1%	23,7%	66,8%	9,5%
9. Södermanlands län	0,356	3,6%	61,8%	33,4%	4,8%
10. Örebro län	0,330	3,4%	55,7%	33,3%	11,0%
11. Västerbottens län	0,330	3,4%	37,4%	46,8%	15,8%
12. Gävleborgs län	0,307	3,2%	45,1%	45,1%	9,8%
13. Värmlands län	0,300	3,2%	36,7%	43,7%	19,6%
14. Blekinge län	0,286	3,1%	15,7%	30,7%	53,6%
15. Jönköpings län	0,264	2,9%	54,2%	30,0%	15,8%
16. Kronobergs län	0,234	2,7%	21,0%	70,2%	8,8%
17. Norrbottens län	0,225	2,6%	23,5%	46,0%	30,5%
18. Kalmar län	0,173	2,2%	36,0%	37,6%	26,4%
19. Dalarnas län	0,122	1,8%	27,8%	56,8%	15,4%
20. Hallands län	0,083	1,6%	52,4%	35,9%	11,7%
21. Gotlands län	0,000	0,9%	45,9%	23,7%	30,4%
Total Sweden		*5,0%*	*37,9%*	*47,1%*	*15,0%*

Table 12. High Tech Industry Index, Trends 1993-2005

Län	High Tech Industry 2005	High Tech Industry 1993	Change	High Tech Trend rank
1. Stockholms län	8,39%	7,90%	0,49	6
2. Östergötlands län	6,83%	8,68%	-1,84	20
3. Västmanlands län	6,46%	9,41%	-2,95	21
4. Uppsala län	4,71%	4,25%	0,46	7
5. Västernorrlands län	4,51%	3,86%	0,65	3
6. Skåne län	4,46%	3,38%	1,08	1
7. Västra Götalands län	4,41%	4,18%	0,23	8
8. Jämtlands län	4,10%	3,47%	0,63	4
9. Södermanlands län	3,59%	4,14%	-0,54	16
10. Västerbottens län	3,40%	2,82%	0,58	5
11. Örebro län	3,40%	3,32%	0,08	10
12. Gävleborgs län	3,22%	3,78%	-0,55	17
13. Värmlands län	3,18%	2,96%	0,21	9
14. Blekinge län	3,07%	4,76%	-1,69	19
15. Jönköpings län	2,90%	3,14%	-0,24	14
16. Kronobergs län	2,68%	1,76%	0,92	2
17. Norrbottens län	2,62%	2,64%	-0,02	12
18. Kalmar län	2,23%	3,05%	-0,83	18
19. Dalarnas län	1,84%	2,36%	-0,52	15
20. Hallands län	1,56%	1,62%	-0,07	13
21. Gotlands län	0,94%	0,94%	-0,00	11
Total Sweden	*5,00%*	*4,86%*	*0,14*	

Compared to the creative class and human capital indicators, where large city-regions appear to have an undisputed dominance, smaller regions appear to perform fairly well on the high tech industry index. Among the top five regions on this ranking we find Östergötland, Västmanland, and Västernorrland.

The nature of high tech industry of these smaller regions, though, is somewhat different from the one we find in the largest cities, as they tend to be more focused on hardware manufacturing rather then software and services. Such a different structure of the technological industry has had an important impact on industry dynamics in the past years and will certainly have a critical role on the regions' ability to maintain their employment and innovation capabilities over time. We can identify these dynamics by looking at the industry trends since 1993.

Comparing the 1993 with the 2005 data (Table 12) an overall stalling of employment is evident related to high tech industry over these 12 years. With the exception of Skåne and Kronobergs län, all other läns are not even close to a 1% increase. Several regions actually register substantial decreases, like Västmanlands län, Östergötlands län and Blekinge län. However, this overall trend hides important differences and patterns.

Looking at the components of high tech industry in table 13 (hardware manufacturing, software &

services, and telecommunications) we can see that much of this decrease is due to a decline in high tech manufacturing activities and telecommunication activities. Most regions, though, have compensated such negative trend on manufacturing by an increase of activities related to software development, technological and technical services. The regions where such shift has been more evident are Stockholms län and Jämtlands län, which registered, respectively, a 2.6 and 2.3 percentage point increase in the share of software and high tech service employment compared to a 1.3 national average. In general, high tech manufacturing activities "destroyed" almost 19 thousand jobs in Sweden between 1993 and 2005, while in the same time span software, high tech services, engineering consulting activities created about 50 thousand jobs in Sweden. This trend indicates a clear undergoing transformation in the Swedish economy.

Not all regions have managed to undergo such transformation, though. The regions whose high tech industry was heavily focused on manufacturing are the ones who found the biggest problems in transitioning towards a more service-based industry and are the ones where the losses in manufacturing have not been compensated by adequate increases in high tech services.

Table 13. Trends in the components of High Tech Industry 1993-2005

	Average annual growth rates of employment			
Län	**Total High Tech Industry Employment**	***Hardware & Products***	***Sofware & Services***	***TLC & Video***
1. Stockholms län	1,7%	-3,3%	8,4%	-0,5%
2. Uppsala län	1,7%	1,5%	5,9%	-7,7%
3. Södermanlands län	-1,1%	-1,9%	1,9%	-4,9%
4. Östergötlands län	-1,7%	-3,5%	9,3%	-6,2%
5. Jönköpings län	0,7%	1,0%	6,6%	-5,2%
6. Kronobergs län	4,3%	2,4%	8,7%	-6,0%
7. Kalmar län	-2,6%	-6,0%	12,9%	-5,4%
8. Gotlands län	1,1%	16,6%	23,2%	-7,6%
9. Blekinge län	-2,5%	-13,8%	2,5%	9,1%
10. Skåne län	2,8%	1,2%	9,9%	-5,0%
11. Hallands län	1,0%	2,1%	6,6%	-7,8%
12. Västra Götalands län	1,7%	-0,4%	8,1%	-4,0%
13. Värmlands län	0,8%	2,3%	5,2%	-5,7%
14. Örebro län	0,9%	1,9%	7,4%	-8,2%
15. Västmanlands län	-2,9%	-3,3%	0,4%	-7,2%
16. Dalarnas län	-2,0%	-5,1%	6,7%	-9,2%
17. Gävleborgs län	-1,4%	-4,0%	8,8%	-8,6%
18. Västernorrlands län	0,8%	1,4%	8,1%	-4,0%
19. Jämtlands län	1,3%	-3,3%	16,6%	-11,2%
20. Västerbottens län	2,3%	2,6%	4,7%	-2,5%
21. Norrbottens län	-0,3%	1,8%	5,9%	-5,7%
Total Sweden	*1,0%*	*-1,9%*	*7,9%*	*-3,2%*

BOX2: The relationship between Talent and Technology

One feature of previous research on creative class and 3Ts conducted in other regions and countries is that the creative class indicator tends to have a stronger correlation with technological industry and innovation capability than more traditional indicators of "human capital" and, most interestingly, indicators of "scientific" capital like the number of Researchers in a region. Data from Swedish counties (län) support this finding, providing some interesting insights on the role of the creative class. In fact, Creative class is the Talent indicator with the strongest correlation with all the three technology and innovation indicators: high tech industry, patents and high tech patents. It is also worth mentioning that the correlation between creative class and high tech patents is higher than the one existing between researchers and high tech patents (see correlation table in Appendix III).

Figure 1

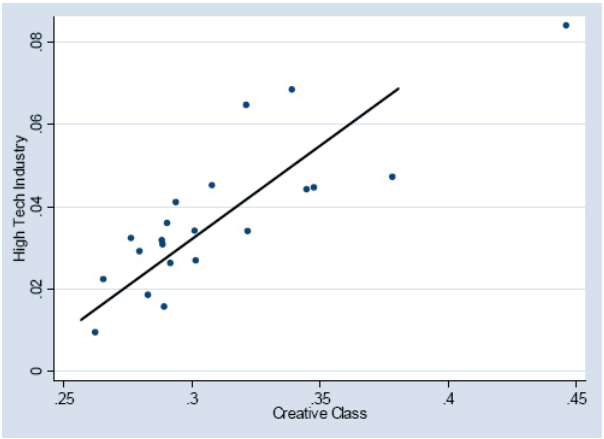
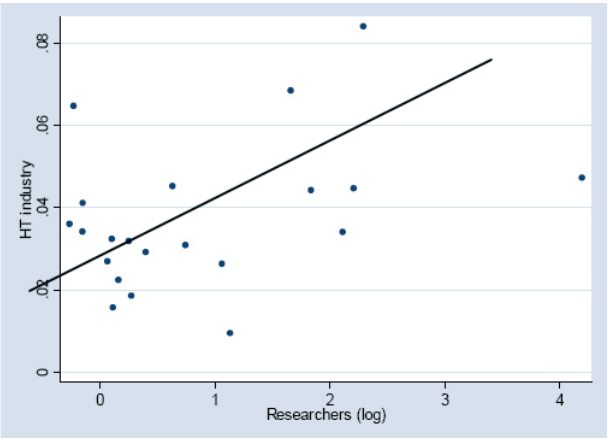


Figure 2



4. The Swedish Tolerance Index

Tolerance represents the social base on which regional development is rooted. An open and tolerant society allows for greater diversity in a community: diversity of backgrounds, skills, and ideas. Moreover, social openness encourages such diversity to be freely expressed, new ideas to be exchanged, and new knowledge to be created. This is why Tolerance is a critical requisite to enhance the creative potential and innovativeness of a region. Human creativity is independent of ethnicity, gender, sexual orientation, life style, and other external attributes.

The Tolerance index is composed by four different parameters: 1) Foreign born population; 2) Diversity in the countries of origin of foreign born people; 3) Bohemian population, and; 4) Social and institutional attitudes towards the lesbian, gay, bisexual and transgender populations.
Results from the overall Tolerance Index are shown in table 14.

Table 14. The Tolerance Index

Län	TOLERANCE INDEX	Gay Index	Boho Index	Foreign Born	Diversity
1. Stockholms län	0,996	2	1	1	1
2. Skåne län	0,636	6	2	2	2
3. Västra Götalands län	0,570	5	3	4	3
4. Uppsala län	0,541	4	5	6	4
5. Kronobergs län	0,414	14	2	9	6
6. Södermanlands län	0,366	15	12	5	10
7. Örebro län	0,366	12	12	8	9
8. Hallands län	0,364	9	9	11	11
9. Östergötlands län	0,353	13	10	10	8
10. Västerbottens län	0,345	1	7	18	16
11. Västmanlands län	0,343	19	17	3	7
12. Gotlands län	0,296	3	4	21	19
13. Blekinge län	0,293	10	19	12	12
14. Jönköpings län	0,283	18	20	7	5
15. Gävleborgs län	0,261	7	16	17	14
16. Dalarnas län	0,230	11	8	16	17
17. Värmlands län	0,213	16	18	14	15
18. Jämtlands län	0,211	8	6	20	21
19. Västernorrlands län	0,161	17	10	19	18
20. Kalmar län	0,132	21	15	15	13
21. Norrbottens län	0,119	20	12	12	20

Four regions stand out from the rest in the overall Tolerance Index: Stockholms län, Skåne län, Västra Götalands län, and Uppsala län: the same regions that top the Talent Index.

This result suggests that the tolerance and talent dimensions are closely related. Correlation analysis between these two dimensions provides additional evidence of this relationship (see Box 3), pointing out the critical role of open and tolerant social climate in attracting and developing human capital and the creative class.

Also, the tolerance results, and in particular the data on foreign born and diversity, seem to suggest a sort of North-South gap. Northern regions appear to have (or will soon have) need for larger inflows of people, as described in the following section.

Foreign Born Population

Table 15. Foreign Born, Index and trends 1990-2004

Län	Forign Born Index	% Foreign Born 2004	% Foreign Born 1990	Change (in%points)	FB Trend Rank
1. Stockholms län	1,000	18,5%	15,3%	3,14	5
2. Skåne län	0,715	14,4%	9,7%	4,77	1
3. Västmanlands län	0,674	13,8%	11,9%	1,94	11
4. Västra Götalands län	0,604	12,8%	9,5%	3,29	3
5. Södermanlands län	0,563	12,2%	10,3%	1,91	13
6. Uppsala län	0,528	11,7%	9,8%	1,91	12
7. Jönköpings län	0,451	10,6%	7,4%	3,20	4
8. Örebro län	0,438	10,4%	7,5%	2,90	7
9. Kronobergs län	0,424	10,2%	7,1%	3,13	6
10. Östergötlands län	0,382	9,6%	6,8%	2,80	8
11. Hallands län	0,340	9,0%	6,5%	2,50	9
12. Blekinge län	0,264	7,9%	5,5%	2,40	10
13. Norrbottens län	0,264	7,9%	6,7%	1,21	18
14. Värmlands län	0,257	7,8%	6,2%	1,61	14
15. Kalmar län	0,201	7,0%	2,7%	4,30	2
16. Dalarnas län	0,181	6,7%	5,6%	1,11	19
17. Gävleborgs län	0,167	6,5%	4,9%	1,60	15
18. Västerbottens län	0,118	5,8%	4,5%	1,28	16
19. Västernorrlands län	0,097	5,5%	4,2%	1,25	17
20. Jämtlands län	0,035	4,6%	3,8%	0,75	21
21. Gotlands län	0,000	4,1%	3,2%	0,88	20
Total Sweden		*12,2%*	*9,0%*	*3,20*	

In 2004 the foreign born population constituted 12.2% of the total Swedish population, a share that has grown more than 3 percent points from 1990. However, this transition to a more open and multicultural society is not occurring at the same speed in the various regions.
Foreign born population is unevenly distributed throughout the country. Especially high concentrations are found in the läns of Stockholm, Skåne, Västmanland, Västra Götaland, Södermanlad and Uppsala, suggesting the existence of some interesting patterns.

First, foreign born people tend to locate not simply in large urban areas (most likely for employment reasons) but also in areas with high connectivity and proximity to other interesting regions. Connectivity and proximity seem to have increased in importance over time. In fact, the area that has registered the highest change in foreign population is the area around Malmö (Skåne län), a region that allows easy connections with the two largest cities in Sweden (Göteborg and Stockholm), as well as with Denmark and the rest of Europe. Another area with strong increase in foreign population is the Göteborg region, which allows relatively easy access to Norway, Denmark and to Malmö.

Second, while in the past foreign population tended to be attracted to industrial locations, recent trends suggest that newer waves of immigration tend to prefer regions that have – or are transitioning towards – a more knowledge-based economy. The high increases in foreign populations exhibited by the area around Göteborg (Västra Götalands län), Jönköpings län, as well as the Stockholm area provide evidence of such a trend.

These trends and the increasing role of proximity and connectivity might be an explanation for the North-South division that seems to emerge from the data: regions like Jämtlands län, Västerbottens län, Västernorrlands län and other mid-north areas exhibit lower shares of foreign born people than southern regions.

Diversity Index

The Diversity Index is intended to "weight" the simple percentage of foreign residents by their regions of origin. In fact, the actual openness and diversity of a region does not just depend on the quantity of foreign population, but also on the variety of its ethnic and cultural background.
The diversity index accounts for such variety by factoring into the index the immigrants' regions of origin and by assigning them different weights according to the "similarity" of cultural background (see Appendix II for details).

The differences between positions registered on the foreign born index and the positions on the diversity index are thus related to the differences in foreign born composition and ethnic "variety".

Table 16. The Diversity Index

Län	Diversity Index (Std. score)	*Diversity Index*	Län	Diversity Index (Std. score)	*Diversity Index*
1. Stockholms län	1,000	0,263	12. Blekinge län	0,311	0,117
2. Skåne län	0,790	0,218	13. Kalmar	0,269	0,108
3. Västra Götalands län	0,619	0,182	14. Gävleborgs län	0,145	0,082
4. Uppsala län	0,535	0,165	15. Värmlands län	0,145	0,082
5. Jönköpings län	0,527	0,163	16. Västerbottens län	0,121	0,077
6. Kronobergs län	0,507	0,159	17. Dalarnas län	0,107	0,074
7. Västmanlands län	0,492	0,156	18. Västernorrlands län	0,076	0,068
8. Östergötlands län	0,441	0,145	19. Gotlands län	0,025	0,057
9. Örebro län	0,428	0,142	20. Norrbottens län	0,005	0,053
10. Södermanlands län	0,421	0,141	21. Jämtlands län	0,000	0,052
11. Hallands län	0,389	0,134			

As expected, the greatest diversity is found in the major urban areas of Stockholms län, Skåne län, Västra Götalands län, and Uppsala län.
However, the dynamic analysis of the diversity index over the past 15 years highlights very interesting trends. In fact, looking at changes in ethnic composition of the foreign born population in Sweden (Table 17), we can appreciate the increasing degree of internationalization and variety of Swedish population.

With the exception of the Malmö area, which continues to be a magnet mostly for Nordic countries (which appears natural given the peculiar position and connectivity infrastructure), all other Swedish regions have instead seen a dramatic decrease of immigrants from the Nordic countries. An example is the decrease registered by the Södermanlands län, where the presence of people from the Nordic countries has basically been reduced by half. On the other hand, we can observe a considerable increase of people coming from the rest of European countries (both western and eastern Europe), Asia, and, to a lesser extent, from Africa.

The increased immigration from Asia, appears to be particularly high in specific areas like Östergötlands län, Södermanlands län, Gotlands län, Blekinge län and Stockholms län.

All these changes suggest an important shift of Sweden from a country that was mostly a “Nordic Country” to a country that is increasingly European and international in nature and visibility.
The increasing diversity in origin of the people inhabiting Sweden needs to be put into relation with the question of how well foreign talent and input is being absorbed into Swedish society. In 2004, the Swedish Integration Board found that 75% of the domestically born population was in occupation versus only 59% of the foreign born population.

Table 17. Composition of Foreign Born Population, changes in selected groups and regions:

Län	From Nordic C.		From EU countries		From Africa		From Asia	
	1990	2004	1990	2004	1990	2004	1990	2004
1. Stockholms län	36,7%	22,1%	27,6%	31,2%	4,6%	9,0%	19,5%	25,9%
2. Uppsala län	36,9%	18,2%	19,1%	49,1%	4,6%	3,5%	28,4%	23,0%
3. Södermanlands län	55,8%	24,0%	21,0%	36,6%	1,9%	5,6%	14,6%	26,5%
4. Östergötlands län	34,5%	25,4%	25,6%	26,2%	1,9%	6,7%	28,1%	32,1%
5. Jönköpings län	34,0%	18,3%	31,6%	47,7%	3,8%	3,7%	23,5%	24,8%
6. Kalmar län	32,1%	40,7%	31,6%	26,2%	5,6%	3,5%	21,4%	22,4%
7. Gotlands län	33,2%	20,4%	26,3%	39,4%	2,8%	3,8%	18,7%	28,9%
8. Blekinge län	37,6%	28,3%	40,7%	32,2%	1,4%	7,5%	12,2%	27,2%
9. Skåne län	28,0%	39,6%	45,6%	26,1%	2,5%	4,0%	15,9%	23,9%
10. Västra Götalands län	40,9%	22,6%	28,6%	52,3%	3,1%	2,2%	18,9%	17,1%
....	....	...	.....	...	...	...	...	...
Total Sweden	*40,4%*	*25,2%*	*27,9%*	*35,7%*	*3,5%*	*5,9%*	*19,0%*	*24,7%*

Bohemian Index

The Bohemian Index is calculated as the share of the workforce formally employed in artistic occupations; more specifically: writers and creative or performing artists, as well as artistic, entertainment and sports associate professionals. Results are shown in table 18.
The bohemian workforce constitutes 1% or more of the total workforce in five läns. These läns are those of Stockholm, Kronoberg, Skåne, Västra Götaland, Gotland, and Uppsala. It is very interesting to note that the first runner up after Stockholm is the Kronobergs län, a smaller region that nonetheless has found its way into the top performing group of the three largest urban areas of the country.

Kronobergs län is an interesting case since it is one of the very few regions that has witnessed a significant increase in its "bohemian" population in the past years (the highest growth rate in Sweden). See table 19. This result is aligned with the positive changes that this region has registered in creative class and in foreign born attractiveness, and can be related to the development in high tech industry as well. In fact, this region has also been one of the fastest growing ones in terms of development of high tech services, catching up rapidly from the low performances of the early 1990s.
Gotlands län, which scores low on both talent and technology measures, appears to have an edge in artistic activities, managing to position itself among the top five regions.

Except for these few cases, though, the data show a general difficulty in pursuing a sustainable artistic career in any of the smaller läns. For example, Västernorrlands län, which enjoys the highest län and municipality spending in the cultural sector, only scores 10th when considering the bohemia share of the workforce. On the other hand, the Stockholms län is home of 43% of the entire Swedish artistic and bohemian population, pushing up the total average for Sweden as a whole.
These results testify the challenges of building up a strong bohemian base in a region, and how complex and multifaceted such a process is.

Table 18. The Bohemian Index

Rank	Län Name	Bohemian Index	% Boho on Workforce
1.	Stockholms län	1	2,28%
2.	Kronobergs län	0,299	1,15%
2.	Skåne län	0,299	1,15%
4.	Västra Götalands län	0,231	1,04%
5.	Gotlands län	0,218	1,02%
6.	Uppsala län	0,205	1,00%
7.	Jämtlands län	0,145	0,90%
8.	Västerbottens län	0,141	0,89%
9.	Dalarnas län	0,093	0,81%
10.	Hallands län	0,085	0,80%
11.	Östergötlands län	0,076	0,79%
11.	Västernorrlands län	0,076	0,79%
13.	Södermanlands län	0,065	0,77%
13.	Örebro län	0,065	0,77%
13.	Norrbottens län	0,065	0,77%
16.	Kalmar län	0,056	0,75%
17.	Gävleborgs län	0,054	0,75%
18.	Västmanlands län	0,051	0,75%
19.	Värmlands län	0,043	0,73%
20.	Blekinge län	0,028	0,71%
21.	Jönköpings län	0	0,66%
	Total Sweden		*1,23%*

Table 19. Bohemian Index, Trends 1990-2003

Län	Bohemian Trend Index	% of Boho on pop. (*) 2003	% of Boho on pop.(*) 1990	Change
1. Kronobergs län	1,000	0,70%	0,56%	0,136
2. Jönköpings län	0,715	0,41%	0,37%	0,043
3. Västerbottens län	0,669	0,50%	0,47%	0,028
4. Kalmar län	0,653	0,41%	0,39%	0,023
5. Dalarnas län	0,633	0,45%	0,44%	0,017
6. Jämtlands län	0,569	0,49%	0,50%	-0,005
7. Örebro län	0,544	0,43%	0,44%	-0,012
8. Norrbottens län	0,520	0,41%	0,43%	-0,020
9. Gävleborgs län	0,508	0,41%	0,43%	-0,024
10. Blekinge län	0,507	0,39%	0,41%	-0,025
11. Västra Götalands län	0,485	0,60%	0,64%	-0,032
12. Stockholms län	0,480	1,43%	1,46%	-0,033
13. Västernorrlands län	0,476	0,44%	0,48%	-0,035
14. Hallands län	0,440	0,40%	0,45%	-0,046
15. Värmlands län	0,408	0,39%	0,44%	-0,057
16. Gotlands län	0,281	0,52%	0,62%	-0,098
17. Östergötlands län	0,279	0,43%	0,53%	-0,099
18. Västmanlands län	0,264	0,40%	0,50%	-0,104
19. Skåne län	0,213	0,60%	0,72%	-0,120
20. Södermanlands län	0,164	0,39%	0,52%	-0,136
21. Uppsala län	0,000	0,50%	0,69%	-0,190
Total Sweden		*0,70%*	*0,73%*	*-0,030*

(*) Because of comparability issues on 1990 and 2003 workforces, the trend has
been calcultaed on the percentage of population in working age (16-74)

The Gay Index is based on the RFSL (The Swedish Federation for Lesbian, Gay, Bisexual and Transgender Rights) municipality investigation of the situation for the LGBT-population conducted in 2006 (see Appendix II for methodological details).

RFSL's rating is built on five dimensions: 1) School curriculum and plan of action; 2) Municipality activities and personnel; 3) Infrastructure of LGBT-society; 4) Hate crimes with homophobic motives, and; 5) Attitude of local population.

Overall results are shown in Table 20. As we can see, Västerbottens län tops the list as the most LGBT-friendly region in Sweden.

Following the appearance among the top ranked in the bohemian index, Gotland once again appears as an open and tolerant society. Besides the län of Västerbotten and Gotland, it is the main urban regions of Sweden that constitutes the top six läns.

Table 20. The Gay Index

Län	Gay Index	RFSL Weighted Avg Value	Län	Gay Index	RFSL Weighted Avg Value
1. Västerbottens län	1,000	2,89	12. Örebro län	0,532	2,48
2. Stockholms län	0,984	2,88	13. Östergötlands län	0,513	2,46
3. Gotlands län	0,942	2,84	14. Kronobergs län	0,426	2,38
4. Uppsala län	0,898	2,80	15. Södermanlands län	0,415	2,37
5. Västra Götalands län	0,828	2,74	16. Värmlands län	0,407	2,37
6. Skåne län	0,740	2,66	17. Västernorrlands län	0,397	2,36
7. Gävleborgs län	0,677	2,61	18. Jönköpings län	0,155	2,15
8. Jämtlands län	0,662	2,59	19. Västmanlands län	0,153	2,14
9. Hallands län	0,640	2,57	20. Norrbottens län	0,143	2,13
10. Blekinge län	0,569	2,51	21. Kalmar län	0,000	2,01
11. Dalarnas län	0,541	2,49			

BOX3: The relationship between Talent, Technology and Tolerance

Similar to results emerged from previous research, the correlation between Talent indicators and Tolerance indicators are highly positive and statistically significant. It is particularly interesting to note that the highest pools of creative class are concentrated in areas that exhibit high concentration of artists, bohemians and people with different ethnic and cultural background. In fact, all correlations among creative class and these indicators (Boho, foreign born population, and diversity indices) are above 0.7 and are significant (given that creative class indictor includes some artists and bohemians, the correlation was calculated on a "corrected" creative class measure, where bohemians were excluded). Also positive and significant is the relationship between concentration of creative class and the gay tolerance indicator.

Figure 3

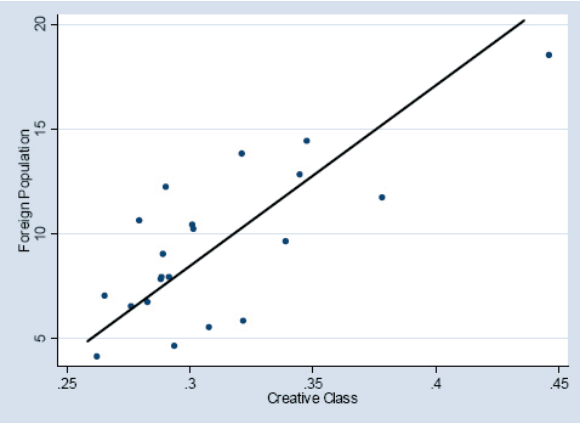
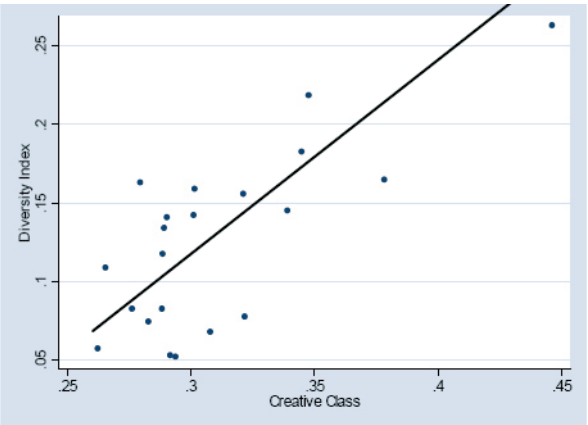


Figure 4



Positive correlation also exists between measures of technology and innovation advancement on one hand and tolerance/openness indicators on the other. Specifically, there is a positive and significant correlation between the technology and innovation indicators and the indicators of "bohemian" presence as well as of the presence of foreign borns and their ethnic diversity. The strongest results appear in the relationship between foreign borns/diversity and high tech patents, which means that the capacity of technological innovation of regions is strongly correlated with their cultural and ethnic diversity (all correlation tables are in Appendix III).

Figure 5

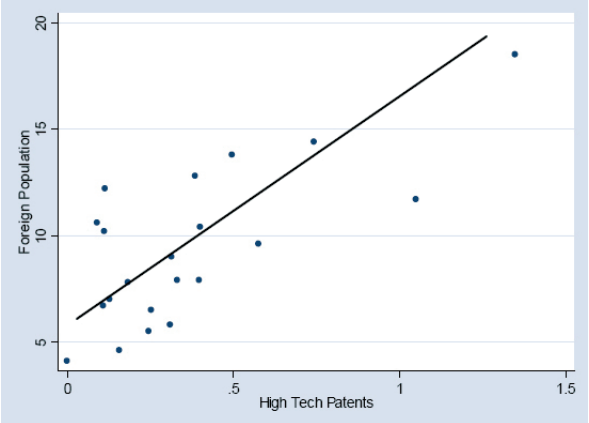
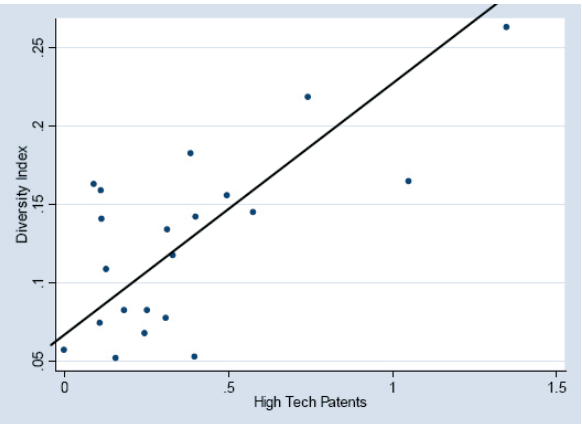


Figure 6



5. The Overall Swedish Creativity Index (SCI)

The Swedish Creativity Index, or SCI, (see table 21) is a composite measure that provides a synthetic view of regional competitiveness within Sweden based on the Swedish Talent, Technology and Tolerance Indexes discussed above.

Compared to more traditional indicators of regional competitiveness, like gross regional product (GRP) or income, this index represents a considerable improvement as it includes a much broader variety of social and economic dimensions critical to economic development. The Swedish Creativity Index does not rank cities and regions on a one dimensional view of economic growth; rather, it measures the competitive potential and the local underlying conditions for the development of a creative economy.

Table 21. The overall Swedish Creativity Index

Län	SWEDISH CREATIVITY INDEX	Tolerance (rank)	Technology (rank)	Talent (rank)
1. Stockholms län	0,901	1	1	2
2. Uppsala län	0,659	4	2	1
3. Skåne län	0,504	2	5	3
4. Västra Götalands län	0,421	3	8	4
5. Östergötlands län	0,384	9	4	6
6. Västmanlands län	0,356	11	3	7
7. Västerbottens län	0,308	10	11	5
8. Örebro län	0,295	7	7	12
9. Gävleborgs län	0,262	15	6	21
10. Kronobergs län	0,235	5	18	9
11. Hallands län	0,222	8	17	8
11. Blekinge län	0,222	13	13	13
11. Södermanlands län	0,222	6	14	16
14. Västernorrlands län	0,22	19	9	10
15. Jämtlands län	0,195	18	12	14
16. Jönköpings län	0,188	14	15	18
17. Värmlands län	0,175	17	16	15
18. Norrbottens län	0,171	21	10	11
19. Dalarnas län	0,134	16	20	19
20. Gotlands län	0,122	12	21	17
21. Kalmar län	0,098	20	19	20

The results on the SCI show that four large urban city-regions are leading Sweden in the Creative Age. In particular, Stockholm positions itself as the leader in terms of the 3T measurements. However Uppsala, Skåne and Västra Götaland also exhibit considerable assets to compete in the Creative Age.

In the case of Västra Götaland, its economic structure, mostly dominated by traditional manufacturing activities (among which the prominent automotive industry), explains the relatively lower weight of the high tech industry on the overall economy. However, in recent years the region has seen an interesting increase in high tech activities and services, probably stimulated by the existing industrial base and the extensive network of specialized sub-suppliers, engineering consultants and other knowledge intensive services.

A second tier of important centers with a large potential consists of Östergötland, Västmanland and Västerbotten. These are smaller urban regions, but with an edge given by strong links to larger areas and an interesting mix of industrial base.
The last four regions on the SCI show difficulties in most of the variables included in the Index. The poor results may be linked to their small population size and to their relatively peripheral location.

In addition to the SCI on the län level, we also calculated the SCI at municipality level. Results are in Appendix V. The fact that Södertälje takes the first position is quite interesting. This municipality is part of the larger Stockholm region, and despite it is ranked relatively low in terms of human capital and creative class, it shows an interesting profile in terms of technological industry, innovation, and social diversity. If properly managed and leveraged, these features could represent important assets for the future development of the area.

6. The SCI and Regional Economic Performance

There is always a great interest in understanding the dynamics of economic prosperity. While it is difficult, if not impossible, to establish causal links between specific regional features and development dynamics, correlation analysis can provide some useful insights on the main correlates of economic development. We looked at the correlations between our SCI and its main components and some classic measures of economic prosperity, like: gross regional product, per capita product, disposable income. In addition, some measures of real estate market were calculated, like average and median process and sales volumes.

The analysis shows a positive correlation between the Swedish Creativity Index and all the considered measures of economic performance (see figures below).The regions with the highest performances on the SCI are the regions with higher gross regional product, considered both in absolute values and per capita, and also the regions with the highest average house prices. There is a negative relationship with unemployment: regions that scores high on the creativity index tend to have, on average, lower unemployment rates.

Figure 7

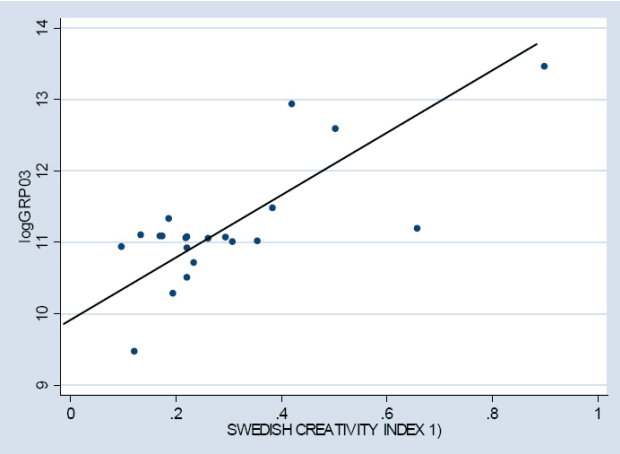


Figure 8

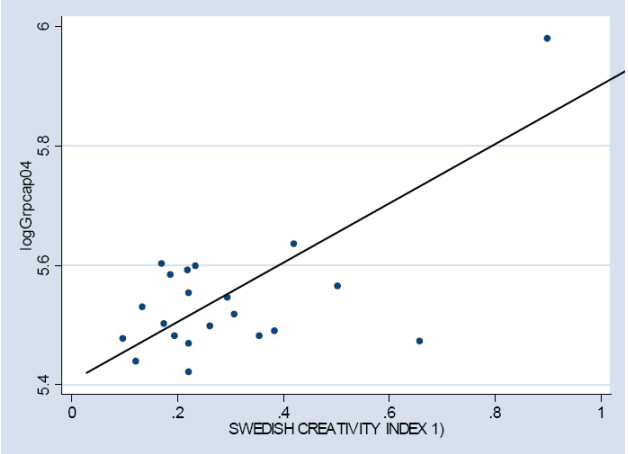
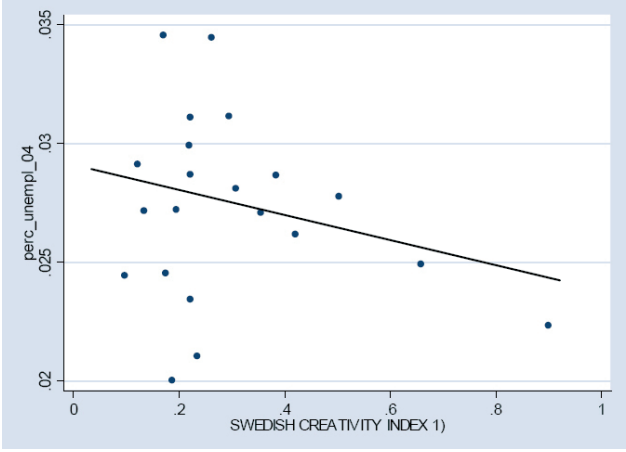


Figure 9

Figure 10



Looking at the correlations among the single components of Talent, Technology and Tolerance (see Appendix III), we can point out other interesting insights[7] .

• Among all the selected indicators, on all dimensions, the one with the higher correlation with economic performance measures is the Bohemian Index;

• Creative Class (excluding all artistic occupations accounted for by the Bohemian index) also shows a very strong correlation with total gross regional product, with per capita product, with disposable income and with the average apartment prices.

• The correlations of Creative Class and Bohemian Index with economic outcomes are higher than those shown by high tech industry indicators or innovation indicators. It is quite possible that the impact of CreativeClass and Bohemians captures other dynamics and that coefficients we observe are the result of both direct and indirect relationship with economic measures. But this actually makes the role of creative class and bohemians in regional dynamics all the more interesting and worth further exploration.

• The other tolerance measures - Foreign Borns and Diversity - also have a positive correlation with the economic measures considered.

• In synthesis, the correlation analysis shows how talent, technology and tolerance are closely related among each other and also with economic dynamics and outcomes. The exact nature and direction of these relationships will deserve further attention and analysis, in order to better understand the role of each one in regional growth and development.

Figure 11

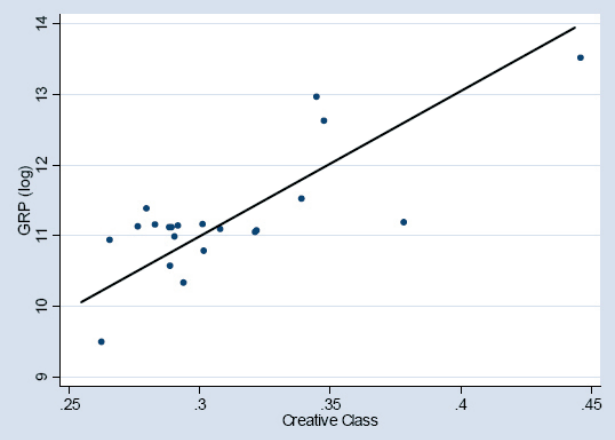
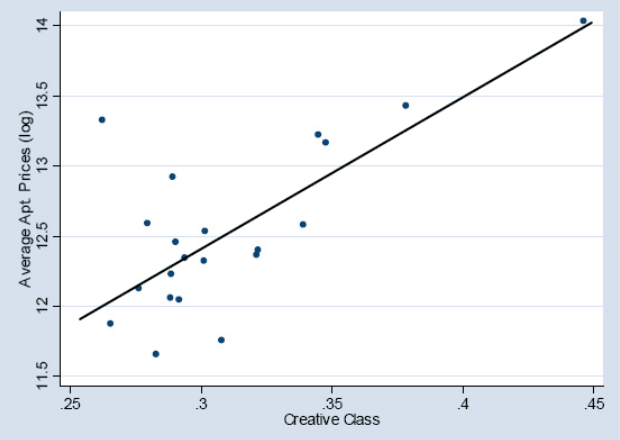


Figure 12



7 The talent, technology and tolerance measures have a one year lag compared to the economic measures, except for the Researchers indicators, for which lagged data were not available.

Figure 13

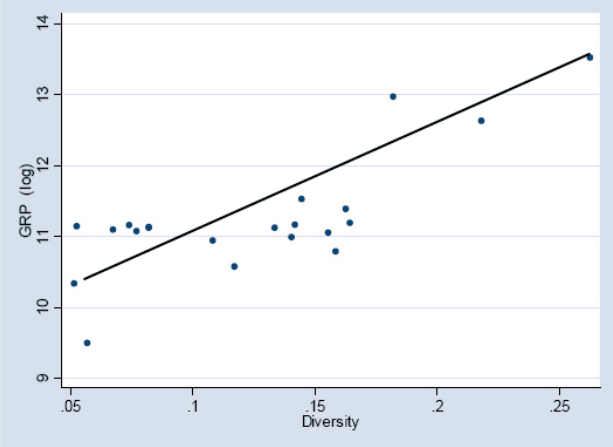
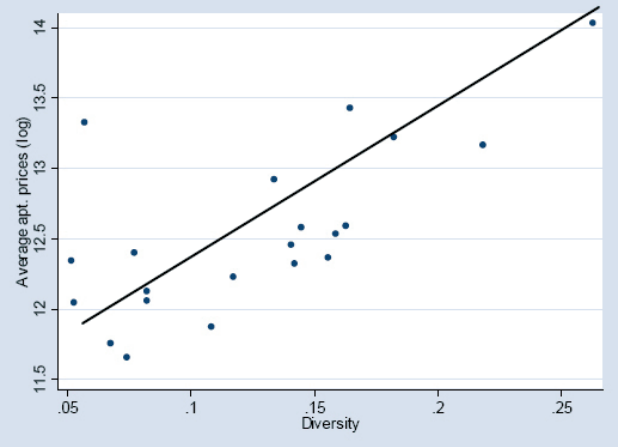


Figure 14



7. The Creativity Trend Index and the Creativity Matrix

While the Swedish Creativity Index captures the current state in terms of social and economic conditions in Swedish regions, the Swedish Creativity Trend Index provides a dynamic picture on how each region has been moving along the multiple dimensions of social and economic development in the past 15 years.

In order to build the Trend Index we calculated the growth that every region registered along the 3T indicators between 1990 (or closest available year) and 2005 (or latest available year). Given some restrictions in data availability the trend index is based on the growth of seven indicators out of the ten used to calculate the SCI[8] .

8 Growth data were not available for Researchers and for Gay Tolerance. Also, the growth rate was not calculated on the Diversity Index due to comparability issues of country of origins between 1990 and 2003..

Table 22. The Swedish Creativity Trend Index

Län	Overall TREND INDEX	TALENT TREND rank	TECH TREND rank	TOLERANCE TREND rank
1. Stockholms län	0,805	1	7	5
2. Skåne län	0,727	4	1	3
3. Västra Götalands län	0,661	2	12	6
4. Kronobergs län	0,640	6	11	2
5. Västerbottens län	0,589	3	6	13
6. Blekinge län	0,588	5	5	8
7. Örebro län	0,575	12	4	7
8. Jönköpings län	0,568	8	17	4
9. Kalmar län	0,559	16	15	1
10. Norrbottens län	0,518	10	2	18
11. Västernorrlands län	0,510	11	3	17
12. Östergötlands län	0,503	7	18	9
13. Jämtlands län	0,444	9	8	20
14. Värmlands län	0,432	15	9	16
15. Gävleborgs län	0,406	19	13	12
16. Dalarnas län	0,395	18	14	15
17. Gotlands län	0,367	14	10	21
18. Hallands län	0,364	20	19	10
19. Uppsala län	0,323	13	20	19
20. Södermanlands län	0,321	21	16	14
21. Västmanlands län	0,232	17	21	11

Comparing the Trend Index with the Swedish Creativity Index, we built the Swedish Creativity Matrix. This tool allows us to see how Swedish regions have been moving in the past 15 years and evaluate their position in a more dynamic way.

The Matrix enables us to position Swedish regions in four groups or quadrants, as follows.

Leaders

Leaders combine strong SCI scores with high growth rates in creative capabilities.
The top performers include the main city-regions in Sweden, with Stockholm as an example of a region that has been able to expand its creative base and to uphold its position in comparison with other regions. Skåne and Västra Götaland also show a good ability to develop and strengthen their positions over time; a result that has probably been favored by their strong industrial and knowledge base on one hand, and their geographical location in dynamic boarder regions with Denmark and Norway on the other. Skåne and Västra Götaland have been able to leverage such proximity building active regional development programs and close relationships with Denmark and Norway. In the case of Skåne, the construction of the Öresund Bridge represents an effort of thinking of regional development in a broader and foresighted way, an effort that is showing positive returns. Västra Götaland on the other hand has been able to build on its geographical location and to position itself as the primary nodal point between Norway and the industrial heartland of Sweden.

Besides the cases of Stockholm, Skåne and Västra Götaland, the matrix also highlights the positive performances of other regions. Västerbotten, with the main university in the north of Sweden, is an example of how peripheral areas can still compete in the creative economy: its main city, Umeå, has been able to sustain attractiveness over time and to strengthen its potential. Kronoberg and Örebro also seem to have benefited from newly established universities. Despite past difficulties and economic problems, Blekinge has managed to gain some ground thanks to the investments made in the IT sector and higher education in science and technology (through the Bleking Institute of Technology), creating a basis on which it can build in the future.

Up and Comers

Up and Comes have lower SCI scores but relatively high growth rates. Their position is improving. This group shows great potential for the future. Jönköping and Kalmar, located in the southern part of Sweden, might benefit from the favorable location and the proximity to the large city regions of Skåne and Västra Götaland.

Jönköping appears particularly well positioned, being close not only to Malmö and Göteborg, but to Stockholm as well. Moreover, both Jönköping and Kalmar have well developed university colleges, which will further support their growth and development process. Concerning the two peripheral areas of Västernorrlands län and Norrbottens län, the positive results show how both regions have worked to leverage their traditional industrial base (mostly based on raw materials and natural resources) and to move towards more technology and knowledge based types of economic activities. In the case of Norrbotten the proximity to Norway, Finland and Russia generates interesting possibilities for creating a larger integrated region.

"Sleeping Beauties"

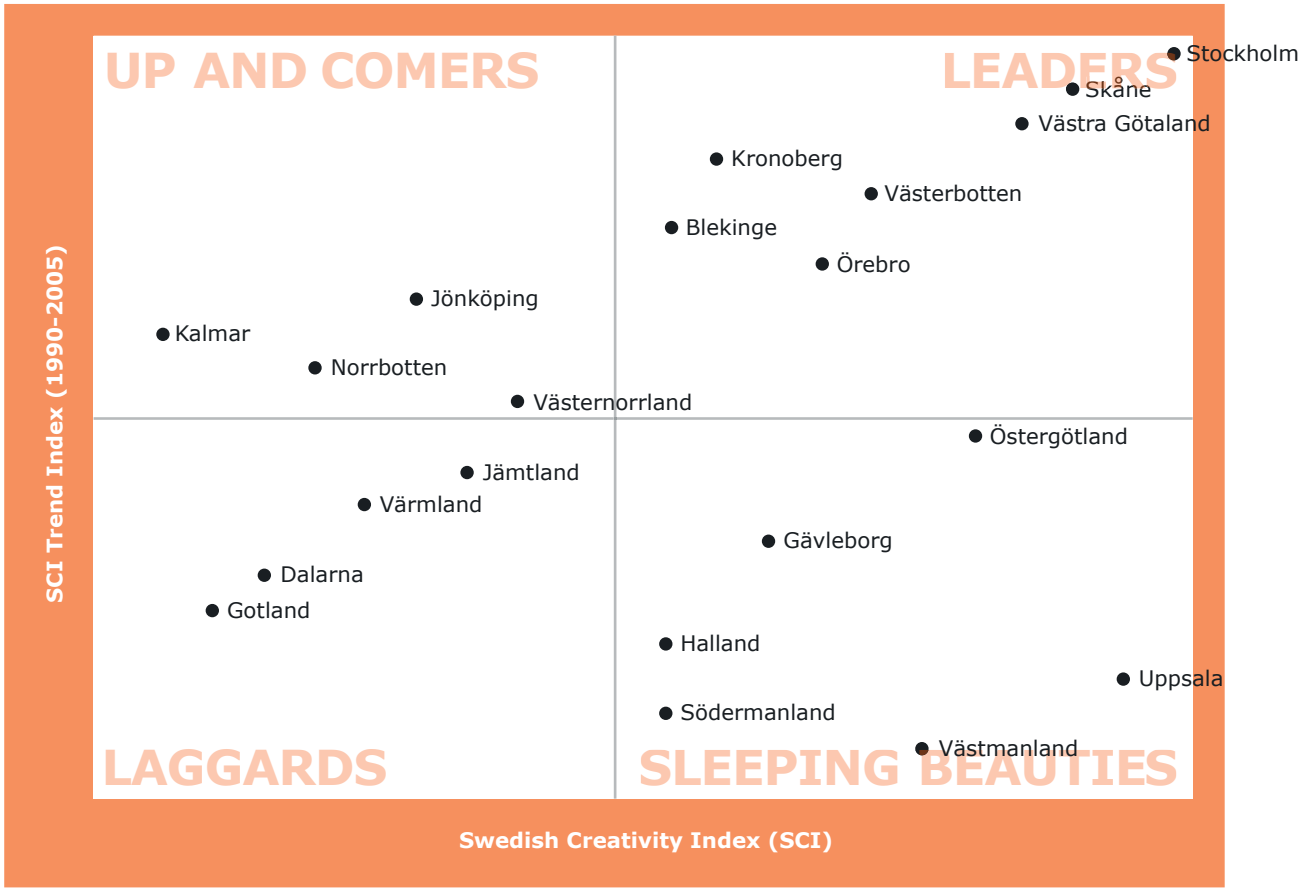
These regions have relatively high SCI scores but have not been sustaining growth in their creative capabilities and assets. This slow dynamic put them at serious risk of losing their competitive edge. Regions that fall in this group are Östergötland, Gävleborg, Uppsala, Halland, Södermanland och Västmanland. The situation for Östergötland and Uppsala is particularly interesting, due to the fact that both regions are hosts to major universities. They have a strong position on the SCI score, but have not been able to keep high growth rates. Sustainable competitiveness demands dynamic change. Östergötland, the heart of the Swedish aviation industry, may have seen a slow growth because of the decline in the military and civil production, but could be able to develop new interesting high-tech areas building on its existing capabilities.

In the case of Uppsala, the challenge is to take advantage of the strong position of the SCI and develop it further. The objective should not be limited to human capital and high-technology research, which is already strong, but could instead focus on cultural industries and diversification to enhance the creative potential and its sustainability. The other regions all benefit from being located close to major city regions, but apparently have not been able to leverage enough on this advantage to build strong endogenous creative capabilities. These regions have other strengths on which they could build. The Halland region, for example, can count on a strong university college in Halmstad, the biggest city, while Södermanland and Västmanland, besides having higher educational facilities, both have strong industrial profiles that could be leveraged in connection with the increased regional integration of the Mälardalsområdet area, centering on Stockholm.

Laggards

Laggards have low SCI scores and low rates of creative growth. They will find it hard to compete in the Creative Age unless they undergo major initiatives and transformation.
Jämtland and Värmland have been penalized by the fact that they have traditionally been focused on the forest industry, and also by the closure of military installations and regiments which has affected the local economy. Nevertheless, investments in higher education and other public support have tried to balance the situation. For example Värmland has a rather large university in the city of Karlstad, and Jämtland has now a part of the Mid-Sweden University, which is based in Östersund. Both regions also have strong tourist areas with ski-resorts, fishing and large forests. The western part of Värmland has, furthermore, gained from large Norwegian investments, facilitating jobs in the retail and logistics sectors. The challenge for these regions is to develop and diversify their industrial base and enhance their attractiveness towards highly skilled and creative workforce. Natural resources and a good quality of life could be assets to leverage in this respect. The western part of Värmland might also gain from the geographical location, where the dynamic city regions of Göteborg in Västra Götaland and Oslo are relatively close.
As far as Dalarna is concerned, one of its problems might be the fact that the urban areas is concentrated to Borlänge and Falun and that it has been difficult for either city to gain strength. With a rich cultural heritage and in relative close proximity to the Stockholm area, there should be potential for development. As an island, Gotland has special challenges. Even though there is a University college and vibrant cultural activities, the geographical location has created problems for sustaining a strong economic position. However, the attractiveness showed by this place towards artists and creative types, and its relatively open social environment, could represent important assets to leverage.

Figure 15: The Swedish Creativity Matrix



8. Conclusions

The research conducted on Swedish regions described in this report allows drawing some final remarks on Sweden's economic geographical structure, its main characteristics, strengths and challenges, as well as suggesting a few critical issues for future policy making and additional research.

The Swedish economy has been transitioning towards an economic system dominated not just by technological products, but increasingly by creative, innovative processes and services, as shown by occupational data.

Large urban areas do appear to have an advantage in attracting and leveraging creative and talented individuals. The data show that most of the economic activity connected to the creative class is found in the lager urban regions. In particular, they indicate that Sweden has approximately five regions that serve as economic growth engines. This pattern persists when the data is disaggregated to the municipality level: municipalities embedded into large city-regions tend to perform better than more isolated ones. These findings raise the critical issue of connectivity and coordination among cities and regions, and how to best manage such an increasing concentration of human and economic resources.

Apart from geographical location and structure, two other elements have been critical in supporting the growth of both large and smaller regions: the investments in education and the positive dynamics in Human Capital on one hand, and the innovativeness of high tech industry on the other. During the 1990s the levels of human capital have considerably increased all over the country, helping to sustain the competitiveness of the industry and of innovation capabilities not just of large cities, but of several of the smaller ones as well. It will be an important part of Sweden's future growth to be able to sustain these positive trends by further cultivating the skills and competences of its workforce and population.

Nurturing people's skills and creativity will be particularly important not only to maintain the high innovativeness and productivity of high tech industry, but also to increase the innovativeness in other sectors, diversify the economy and enhance high end entrepreneurship. These latter aspects will be very important in many smaller and peripheral regions. In fact, while many of them did have (and still do) thriving high tech industries, however, most of them tended to be focused on manufacturing and have not managed to create sufficient spillover effects in other industries, or to support the development of high-end services and more creative activities. With the increasing outsourcing of manufacturing activities these areas may face serious problems and will need substantial restructuring of their economies and growth strategies.

Other interesting insights and policy implications come from the analysis of the tolerance dimension. As shown by the data, Sweden has gradually made a transition towards an increasingly international and diverse population. Swedish regions are attracting people not just from other Nordic countries but also from the rest of Europe, Asia and Africa as well. This increasing diversity represents a tremendous asset but will also call for new and more specific policies to manage the integration process into the Swedish society and economy. Policies to ease the inclusion of foreign born population into the workforce – and especially measures to facilitate the attraction of highly skilled immigrants – will be of paramount importance to sustain Swedish growth. The attraction and integration of foreign born workers will also call for constructive city planning, investments in cultural activities to increase the local quality of life and support integration processes.

In synthesis, Swedish regions and cities are coming at a crossroad. Many of them are becoming (or have the potential to become) international hubs for creative and innovative people and high-value added economic activities.

The achievement of this point has been possible thanks to foresighted policies that have helped the development of an educated workforce, innovative industry and supportive social fabric.
However, old policies may not be enough to complete this transition and sustain economic growth. Sweden needs a new vision for its future development. A vision that is able to understand and tackle both the social and economic challenges that lie ahead; a vision that is able to leverage each city's and region's assets, integrating them and connecting them to create highly dynamic and innovative regions that will take Sweden into the future.

Appendix I: The Structure of Swedish Läns & Municipalities

Name of län	Main municipality in the län	N. of mun. in the län	Population of the län	Population of the main municipality	Län's Share of Sweden Pop.
1. Stockholms län	Stockholm	26	1.889.945	771.038	20,9%
2. Uppsala län	Uppsala	7	304.367	183.308	3,4%
3. Södermanlands län	Eskilstuna	9	261.895	91.635	2,9%
4. Östergötlands län	Linköping	13	416.303	137.636	4,6%
5. Jönköpings län	Jönköping	13	330.179	120.965	3,6%
6. Kronobergs län	Växjö	8	178.443	77.363	2,0%
7. Kalmar län	Kalmar	12	233.944	60.924	2,6%
8. Gotlands län	Gotland	1	57.488	57.488	0,6%
9. Blekinge län	Karlskrona	5	150.696	61.383	1,7%
10. Skåne län	Malmö	33	1.169.464	271.271	12,9%
11. Hallands län	Halmstad	6	285.868	88.224	3,2%
12. Västra Götalands län	Göteborg	49	1.528.455	484.942	16,9%
13. Värmlands län	Karlstad	16	273.288	82.096	3,0%
14. Örebro län	Örebro	12	274.121	127.733	3,0%
15. Västmanlands län	Västerås	11	261.391	131.934	2,9%
16. Dalarnas län	Falun	15	275.755	55.274	3,0%
17. Gävleborgs län	Gävle	10	275.994	92.205	3,1%
18. Västernorrlands län	Sundsvall	7	243.736	94.044	2,7%
19. Jämtlands län	Östersund	8	127.028	58.428	1,4%
20. Västerbottens län	Umeå	15	257.652	110.758	2,8%
21. Norrbottens län	Luleå	14	251.740	72.751	2,8%
Total Sweden		*290*	*9.047.752*		

Appendix II: Methodology

1. How the Swedish Creativity Index is built

The Swedish Creativity Index is composed by three Indices: the Talent Index, the Technology Index and the Tolerance Index, each of which has the same weight (1/3).
Each of these indices is in turn composed by three to four indicators, whose definition, sources and reference years are summarized in below.
The län values for each indicator were standardized by applying the formula:

$$V_{ij} = \frac{X_{ij} - Min_j}{(Max_j - Min_j)}$$

Where Vij is the standardized value of Län i on indicator j, Xij is the actual value reported by län i on indicator j, Minj is the minimum value registered among all läns for indicator j and Maxj is the maximum value registered for indicator j.

The resulting figures are values in the 0-1 range, where 1 corresponds to the best performing region and 0 to the worst performing one.

The values for the main indices (Talent, Technology and Tolerance) are obtained through the average of the standardized scores reported by the regions on each indicator.

Indicators: definitions and sources.

Dimension	*Indicator*	*Definition*	*Source*	*Year(s)*
TALENT	Human Capital	Percentage of Population 16-74 with tertiary education	SCB / Statistics Sweden	1990, 2005
	Creative Class	Percentage of Workforced engaged in "Creative Occupations" (ISCO-88)	SCB / Statistics Sweden	1990, 2003
	Researchers	People employed in R&D institutions per 10,000 population	SCB / Statistics Sweden	2003
TECHNOLOGY	Innovation	Patents Applications per 10,000 population	PRV / Swedish Patent and Register Office	1990, 2005
	High Tech Innovation	High Tech Patents applications per 10,000 population	SCB / Statistics Sweden	1990, 2005
	High Tech Industry	Share of workforce employed in High Tech Industry, subdivided into three distinct groups: a) Hardware & Products; b) Sofware & Services; c) TLC and Video Ind.	SCB / Statistics Sweden	1993, 2005
TOLERANCE	Foreign Borns	Percentage of foreign born population	SCB / Statistics Sweden	1990, 2004
	Diversity Index	Fragmentation Index based on presence and ethnic background of foreign born population	SCB / Statistics Sweden	1990, 2004
	Gay Tolerance	Rating on a scale of five dimensions based on surveys: 1) School curriculum and plan of action 2) Municipality activities and personnel 3) Infrastructure of LGBT-society 4) Hate crimes with homofobic motives 5) Attitude of local population	RFSL / The Swedish Federation for Lesbian, Gay, Bisexual and Transgender Rights	2006
	Bohemians	Percentage of workforce enaged in artistic activties (artists, writers etc.)	SCB / Statistics Sweden	1990, 2003

2. Additional Information on Definition and Formulas used:

Creative Class Definition

The Creative Class Index has been built according to the method used by Richard Florida in "The Rise of the Creative Class" to analyze and compare regions and cities in the United States. The Index includes high skilled professionals as engineers, architects, lawyers, managers, senior officials, professors, scientists, full time artists. It also includes people engaged in some occupations that do not necessarily imply specific formal education and specialization attainments, such as entrepreneurs, associate professionals and technicians in sectors like computer science, life sciences and health care, for example.

In international comparisons, where countries may use different statistical systems, the inclusion of these latter occupations has proven to sometimes be difficult for comparability issues and has led to the use of a new, less inclusive definition of Creative Class, where technical and associate occupations were not included. Unclassified persons have been removed from the tables.

Human Capital Definition

Human Capital is the share of population between 16 and 74 years old that has a "tertiary" level of education. The definition of "Tertiary Education" used here is limited to university studies of three years of more. This definition differs slightly from the one used by the OECD, which also includes two-year programs.

Researchers Definition

The indicator on researchers has been measured by looking at people working in Research and Development companies and institutions, including university departments and research centers. The variable is a combined measurement of the occupational classification and the SNI (Svensk Näringsgrensindelning) business statistics. This is built on the EU NACE classification for business activities.

There is a certain degree of imprecision in this measure to the extent to which there might be people in R&D institutions that are not devoting 100% of their work to research activities. Unfortunately the data source does not allow separating out this information. Additionally, company reporting and classification might underestimate the number of active researchers.

High Tech Industry Definition

The definition of High Tech Industry adopted here follows the classification proposed by the Milken Institute[9] , which includes manufacturing of high tech products like pharmaceuticals, semiconductors, electrical equipments, optical equipments, aircrafts and spacecraft, computers, etc. It also includes high tech services like databases and data analysis, software development and technical testing, telecommunications, and video production and distribution.

High Tech Patent Definition

The classification of high tech versus non high tech patents is based on IPC subclass codes and it fol-

9 See Ross C. de Vol, America's High Tech Economy. Growth, Development and Risks for Metropolitan Areas. Milken Institute, July 13, 1999.

lows the criteria established by the Trilateral Statistical Report, where the subsequent technical fields are defined as high technology: Computer and automated business equipment; micro-organism and genetic engineering; aviation; communications technology; semiconductors; lasers.
It is important to note the methodological problems related to patent applications. The location for the origin of the patent application might not always be the same as for where the patent is finally registered due to internal company structures for R & D.

Gay Tolerance

The Index of Gay Tolerance was based on a survey conducted by the RFSL (The Swedish Federation for Lesbian, Gay, Bisexual and Transgender Rights). The RFSL built their investigations on the five parameters of 1) School curriculum and plan of action 2) Municipality activities and personnel 3) Infrastructure of LGBT-society 4) Hate crimes with homophobic motives 5) Attitude of local population. The data collection for the RFSL municipality investigation was conducted (by Lars Jonsson) during the spring of 2006 (time frame with a few exceptions), and comprise all of the 290 municipalities. The aim of the investigation is to enlighten the responsibility that lies on the municipalities in assuring a good life situation of LGBT-people. The study is quantitative and should be seen as an attempt to map out a multifaceted reality. Municipality activity within the field has been measured. Furthermore, the public attitude towards gay people has been measured as well as the existence of an organized gay community.
Sources for the investigation are: surveys sent out to all of Sweden's municipalities (whereby 262 of 290 answered); survey sent to all of the RFSL branches; the RFSL school plan investigation; statistics from Statistics Sweden; statistics from Swedish Security Service (SÄPO); statistics from Forskningsgruppen för Samhälls- och Informationsstudier (FSI).

Diversity Index Definition

The Diversity Index has been built based on a typical "fractionalization index", frequently used in economics and public policy studies. The formula used is the following:

$$Diversity_c = 1 - \sum_{i=1}^{m} (x_{ic})^2$$

Where Xic is the share of population from country i living in region (län) c.
Compared to the simple share of foreign born over total population, which only accounts for the total foreign presence, this index accounts for the variety of the ethnic backgrounds of residents, thus providing a much better picture of actual "diversity". In the context of Swedish regions the index has been slightly modified: due to data availability, it has been considered the "macroregion" (EU members countries, North America, South America etc.) instead of the country of origin of each resident. Subsequently, residents from 'neighboring countries', namely the "Nordic countries" have been considered as coming from the same ethnic/cultural group.
This choice is due both to homogeneity issue in treating all data in a similar fashion and also to take into account of the higher mobility within and among Nordic countries which is traditionally seen as a more limited source of ethnic and cultural diversity.
Also, when comparing the diversity indices for 1990 and 2005, the 2005 index has been slightly modified to make it comparable with the 1990 one. Population coming from all European countries (both EU and not EU members) was considered as one group.

Appendix III: Correlation Tables

Pairwise correlations: Talent versus Technology

	Researchers	Human Capital	Creative Class
Patents	0,25	0,43	0,61
	0,27	*0,04*	*0,00*
High Tech Patents	0,59	0,90	0,93
	0,00	*0,00*	*0,00*
HT Industry	0,23	0,62	0,83
	0,31	*0,00*	*0,00*

(Numbers in *Italics* represent the significance level)

Pairwise correlations: Talent versus Tolerance

	Research.	Human Capital	Creative Class
Gay Tolerance	0,39	0,65	0,50
	0,08	*0,00*	*0,02*
Boho Index	0,19	0,77	0,80
	0,39	*0,00*	*0,00*
Foreign Born	0,24	0,61	0,76
	0,28	*0,00*	*0,00*
Diversity Index	0,26	0,63	0,74
	0,25	*0,00*	*0,00*

(Numbers in *Italics* represent the significance level)

Pairwise correlations: Tolerance versus Technology

	Patents	High tech Patents	HT Industry
Gay Tolerance	0,23	0,42	0,17
	0,31	*0,06*	*0,46*
Boho Index	0,47	0,71	0,56
	0,03	*0,00*	*0,01*
Foreign Born	0,54	0,73	0,67
	0,01	*0,00*	*0,00*
Diversity Index	0,48	0,69	0,60
	0,03	0,00	0,00

(Numbers in *Italics* represent the significance level)

Correlations among each of the 3Ts indicator and main Economic variables

	R&D people	Human Capital	Creative Class	Creative Class (excl. Bohos)	Patents	High Tech Patents	High Tech Industry	Gay	Bohemian	Foreign Borns	Diversity Index
Unemployment	-0,151	-0,273	-0,264	-0,251	0,146	-0,117	-0,102	0,024	-0,349	-0,373	-0,499
GRP	0,093	**0,709**	**0,809**	**0,790**	**0,542**	**0,703**	**0,624**	0,415	**0,859**	**0,735**	**0,737**
GRP per capita	0,089	**0,667**	**0,762**	**0,737**	**0,513**	**0,677**	**0,582**	0,265	**0,880**	**0,609**	**0,605**
Disp. Income	0,305	**0,662**	**0,672**	**0,648**	**0,457**	**0,657**	**0,432**	**0,518**	**0,805**	**0,580**	**0,649**
Apt. Sales	0,165	**0,758**	**0,858**	**0,839**	**0,596**	**0,775**	**0,680**	**0,436**	**0,898**	**0,750**	**0,740**
Apt. Avg. Prices	0,424	**0,836**	**0,795**	**0,773**	**0,437**	**0,752**	**0,489**	**0,628**	**0,884**	**0,639**	**0,684**
Apt. Median Prices	**0,491**	**0,800**	**0,737**	**0,716**	0,378	**0,701**	0,417	**0,628**	**0,822**	**0,589**	**0,659**

(Note: Coefficients with significance level < or = to 5% are marked in bold)

Appendix IV: Creative Class in Swedish Municipalities

	Municipality	Län	Creative Class %
1.	**Solna**	Stockholms län	55,74
2.	**Danderyd**	Stockholms län	53,57
3.	**Stockholm**	Stockholms län	49,52
4.	**Lund**	Skåne län	49,50
5.	**Sundbyberg**	Stockholms län	46,87
6.	**Mölndal**	Västra Götalands län	45,89
7.	**Sollentuna**	Stockholms län	44,59
8.	**Uppsala**	Uppsala län	43,36
9.	**Linköping**	Östergötlands län	42,22
10.	**Göteborg**	Västra Götalands län	42,04
11.	**Täby**	Stockholms län	41,59
12.	**Nacka**	Stockholms län	41,08
13.	**Lidingö**	Stockholms län	40,84
14.	**Upplands Väsby**	Stockholms län	40,53
15.	**Malmö**	Skåne län	40,13
16.	**Huddinge**	Stockholms län	39,70
17.	**Arboga**	Västmanlands län	38,83
18.	**Lomma**	Skåne län	38,53
19.	**Karlstad**	Värmlands län	38,05
20.	**Umeå**	Västerbottens län	37,95
21.	**Västerås**	Västmanlands län	37,51
22.	**Växjö**	Kronobergs län	37,04
23.	**Södertälje**	Stockholms län	36,58
24.	**Luleå**	Norrbottens län	36,26
25.	**Helsingborg**	Skåne län	35,68
26.	**Falun**	Dalarnas län	35,30
27.	**Sundsvall**	Västernorrlands län	35,20
28.	**Örebro**	Örebro län	34,45
29.	**Kalmar**	Kalmar län	34,34
30.	**Älmhult**	Kronobergs län	34,31
31.	**Borås**	Västra Götalands län	34,18
32.	**Partille**	Västra Götalands län	34,14
33.	**Karlskrona**	Blekinge län	33,99
34.	**Trollhättan**	Västra Götalands län	33,97
35.	**Järfälla**	Stockholms län	33,70
36.	**Östersund**	Jämtlands län	33,61
37.	**Jönköping**	Jönköpings län	33,33
38.	**Botkyrka**	Stockholms län	33,31
39.	**Salem**	Stockholms län	32,92
40.	**Staffanstorp**	Skåne län	32,87
41.	**Vellinge**	Skåne län	32,71
42.	**Karlskoga**	Örebro län	32,64
43.	**Nyköping**	Södermanlands län	32,09
44.	**Gävle**	Gävleborgs län	31,99
45.	**Ale**	Västra Götalands län	31,88
46.	**Härnösand**	Västernorrlands län	31,78
47.	**Norrköping**	Östergötlands län	31,65
48.	**Kungsbacka**	Hallands län	31,62
49.	**Finspång**	Östergötlands län	31,58
50.	**Varberg**	Hallands län	31,48
51.	**Stenungsund**	Västra Götalands län	31,43
52.	**Eskilstuna**	Södermanlands län	31,13
53.	**Burlöv**	Skåne län	31,01
54.	**Uddevalla**	Västra Götalands län	30,97
55.	**Alingsås**	Västra Götalands län	30,93
56.	**Håbo**	Uppsala län	30,81
57.	**Borlänge**	Dalarnas län	30,81
58.	**Ängelholm**	Skåne län	30,79
59.	**Vaxholm**	Stockholms län	30,45
60.	**Perstorp**	Skåne län	30,39
61.	**Skövde**	Västra Götalands län	30,39
62.	**Halmstad**	Hallands län	30,25
63.	**Nynäshamn**	Stockholms län	30,25
64.	**Vallentuna**	Stockholms län	30,17
65.	**Lerum**	Västra Götalands län	30,17
66.	**Kungälv**	Västra Götalands län	30,09
67.	**Gnesta**	Södermanlands län	30,08
68.	**Höganäs**	Skåne län	30,04
69.	**Härryda**	Västra Götalands län	30,01
70.	**Ludvika**	Dalarnas län	29,93
71.	**Svalöv**	Skåne län	29,73
72.	**Landskrona**	Skåne län	29,61
73.	**Ekerö**	Stockholms län	29,59
74.	**Kristianstad**	Skåne län	29,56
75.	**Haninge**	Stockholms län	29,51
76.	**Skellefteå**	Västerbottens län	29,47
77.	**Österåker**	Stockholms län	29,46
78.	**Örnsköldsvik**	Västernorrlands län	29,33
79.	**Ystad**	Skåne län	29,10
80.	**Karlshamn**	Blekinge län	29,08
81.	**Piteå**	Norrbottens län	29,08
82.	**Tyresö**	Stockholms län	29,04
83.	**Vänersborg**	Västra Götalands län	28,73
84.	**Hammarö**	Värmlands län	28,61
85.	**Mullsjö**	Jönköpings län	28,37
86.	**Trelleborg**	Skåne län	28,36
87.	**Knivsta**	Uppsala län	28,36
88.	**Lycksele**	Västerbottens län	28,23

	Municipality	Län	Creative Class %
89.	**Värmdö**	Stockholms län	28,21
90.	**Dals-Ed**	Västra Götalands län	27,71
91.	**Eksjö**	Jönköpings län	27,63
92.	**Strängnäs**	Södermanlands län	27,61
93.	**Hässleholm**	Skåne län	27,60
94.	**Hudiksvall**	Gävleborgs län	27,55
95.	**Lindesberg**	Örebro län	27,42
96.	**Östhammar**	Uppsala län	27,41
97.	**Värnamo**	Jönköpings län	27,32
98.	**Åtvidaberg**	Östergötlands län	27,30
99.	**Ljusdal**	Gävleborgs län	27,23
100.	**Kalix**	Norrbottens län	27,20
101.	**Kävlinge**	Skåne län	27,10
102.	**Nora**	Örebro län	27,07
103.	**Eslöv**	Skåne län	27,06
104.	**Mora**	Dalarnas län	26,99
105.	**Åre**	Jämtlands län	26,92
106.	**Sala**	Västmanlands län	26,88
107.	**Båstad**	Skåne län	26,88
108.	**Söderköping**	Östergötlands län	26,86
109.	**Skara**	Västra Götalands län	26,83
110.	**Katrineholm**	Södermanlands län	26,76
111.	**Lidköping**	Västra Götalands län	26,74
112.	**Kiruna**	Norrbottens län	26,74
113.	**Vadstena**	Östergötlands län	26,68
114.	**Habo**	Jönköpings län	26,53
115.	**Tranås**	Jönköpings län	26,48
116.	**Bollnäs**	Gävleborgs län	26,40
117.	**Gotland**	Gotlands län	26,25
118.	**Ulricehamn**	Västra Götalands län	26,22
119.	**Bollebygd**	Västra Götalands län	26,15
120.	**Laxå**	Örebro län	26,12
121.	**Ragunda**	Jämtlands län	26,12
122.	**Sandviken**	Gävleborgs län	26,08
123.	**Gällivare**	Norrbottens län	26,07
124.	**Sollefteå**	Västernorrlands län	25,99
125.	**Torsby**	Värmlands län	25,96
126.	**Pajala**	Norrbottens län	25,96
127.	**Vännäs**	Västerbottens län	25,87
128.	**Gagnef**	Dalarnas län	25,87
129.	**Västervik**	Kalmar län	25,84
130.	**Enköping**	Uppsala län	25,80
131.	**Hörby**	Skåne län	25,78
132.	**Bromölla**	Skåne län	25,61
133.	**Ljungby**	Kronobergs län	25,60
134.	**Härjedalen**	Jämtlands län	25,59
135.	**Motala**	Östergötlands län	25,57
136.	**Oskarshamn**	Kalmar län	25,55
137.	**Tjörn**	Västra Götalands län	25,53
138.	**Övertorneå**	Norrbottens län	25,46
139.	**Lysekil**	Västra Götalands län	25,44
140.	**Mjölby**	Östergötlands län	25,41
141.	**Säter**	Dalarnas län	25,38
142.	**Kramfors**	Västernorrlands län	25,26
143.	**Öckerö**	Västra Götalands län	25,20
144.	**Aneby**	Jönköpings län	25,08
145.	**Upplands-Bro**	Stockholms län	24,99
146.	**Trosa**	Södermanlands län	24,98
147.	**Älvkarleby**	Uppsala län	24,98
148.	**Strömstad**	Västra Götalands län	24,97
149.	**Hallstahammar**	Västmanlands län	24,96
150.	**Jokkmokk**	Norrbottens län	24,95
151.	**Nykvarn**	Stockholms län	24,94
152.	**Norrtälje**	Stockholms län	24,91
153.	**Krokom**	Jämtlands län	24,89
154.	**Mark**	Västra Götalands län	24,87
155.	**Storuman**	Västerbottens län	24,86
156.	**Osby**	Skåne län	24,84
157.	**Skurup**	Skåne län	24,82
158.	**Fagersta**	Västmanlands län	24,82
159.	**Söderhamn**	Gävleborgs län	24,79
160.	**Leksand**	Dalarnas län	24,71
161.	**Simrishamn**	Skåne län	24,55
162.	**Flen**	Södermanlands län	24,54
163.	**Töreboda**	Västra Götalands län	24,48
164.	**Bjuv**	Skåne län	24,46
165.	**Avesta**	Dalarnas län	24,34
166.	**Ronneby**	Blekinge län	24,26
167.	**Säffle**	Värmlands län	24,20
168.	**Höör**	Skåne län	24,17
169.	**Vilhelmina**	Västerbottens län	24,07
170.	**Gislaved**	Jönköpings län	24,03
171.	**Nässjö**	Jönköpings län	24,03
172.	**Robertsfors**	Västerbottens län	24,00
173.	**Kristinehamn**	Värmlands län	23,99
174.	**Boxholm**	Östergötlands län	23,99
175.	**Köping**	Västmanlands län	23,97
176.	**Åmål**	Västra Götalands län	23,96
177.	**Falköping**	Västra Götalands län	23,90
178.	**Arvika**	Värmlands län	23,81
179.	**Falkenberg**	Hallands län	23,78
180.	**Vårgårda**	Västra Götalands län	23,64
181.	**Borgholm**	Kalmar län	23,64
182.	**Rättvik**	Dalarnas län	23,50
183.	**Mönsterås**	Kalmar län	23,41
184.	**Mörbylånga**	Kalmar län	23,37

	Municipality	Län	Creative Class %
185.	**Bräcke**	Jämtlands län	23,33
186.	**Malå**	Västerbottens län	23,32
187.	**Lekeberg**	Örebro län	23,28
188.	**Svedala**	Skåne län	23,14
189.	**Klippan**	Skåne län	23,10
190.	**Tranemo**	Västra Götalands län	23,03
191.	**Tomelilla**	Skåne län	23,03
192.	**Haparanda**	Norrbottens län	22,98
193.	**Sjöbo**	Skåne län	22,96
194.	**Torsås**	Kalmar län	22,92
195.	**Mariestad**	Västra Götalands län	22,83
196.	**Vara**	Västra Götalands län	22,77
197.	**Hedemora**	Dalarnas län	22,73
198.	**Skinnskatteberg**	Västmanlands län	22,71
199.	**Orsa**	Dalarnas län	22,70
200.	**Ydre**	Östergötlands län	22,68
201.	**Munkedal**	Västra Götalands län	22,66
202.	**Laholm**	Hallands län	22,63
203.	**Kil**	Värmlands län	22,61
204.	**Gnosjö**	Jönköpings län	22,54
205.	**Åstorp**	Skåne län	22,52
206.	**Grästorp**	Västra Götalands län	22,45
207.	**Malung**	Dalarnas län	22,43
208.	**Surahammar**	Västmanlands län	22,38
209.	**Olofström**	Blekinge län	22,38
210.	**Forshaga**	Värmlands län	22,33
211.	**Högsby**	Kalmar län	22,32
212.	**Timrå**	Västernorrlands län	22,32
213.	**Oxelösund**	Södermanlands län	22,30
214.	**Vindeln**	Västerbottens län	22,20
215.	**Sölvesborg**	Blekinge län	22,11
216.	**Mellerud**	Västra Götalands län	22,10
217.	**Svenljunga**	Västra Götalands län	22,05
218.	**Hylte**	Hallands län	22,02
219.	**Överkalix**	Norrbottens län	22,02
220.	**Vetlanda**	Jönköpings län	21,98
221.	**Tibro**	Västra Götalands län	21,95
222.	**Sunne**	Värmlands län	21,86
223.	**Orust**	Västra Götalands län	21,85
224.	**Degerfors**	Örebro län	21,72
225.	**Hagfors**	Värmlands län	21,66
226.	**Vimmerby**	Kalmar län	21,61
227.	**Smedjebacken**	Dalarnas län	21,56
228.	**Hjo**	Västra Götalands län	21,55
229.	**Sigtuna**	Stockholms län	21,54
230.	**Tidaholm**	Västra Götalands län	21,52
231.	**Norberg**	Västmanlands län	21,49
232.	**Boden**	Norrbottens län	21,47
233.	**Hultsfred**	Kalmar län	21,45
234.	**Ljusnarsberg**	Örebro län	21,41
235.	**Bjurholm**	Västerbottens län	21,36
236.	**Dorotea**	Västerbottens län	21,33
237.	**Herrljunga**	Västra Götalands län	21,25
238.	**Sävsjö**	Jönköpings län	21,19
239.	**Kumla**	Örebro län	21,18
240.	**Essunga**	Västra Götalands län	21,13
241.	**Östra Göinge**	Skåne län	21,04
242.	**Kinda**	Östergötlands län	21,04
243.	**Sotenäs**	Västra Götalands län	21,03
244.	**Storfors**	Värmlands län	21,01
245.	**Emmaboda**	Kalmar län	20,98
246.	**Sorsele**	Västerbottens län	20,98
247.	**Alvesta**	Kronobergs län	20,97
248.	**Karlsborg**	Västra Götalands län	20,93
249.	**Markaryd**	Kronobergs län	20,85
250.	**Arjeplog**	Norrbottens län	20,83
251.	**Vingåker**	Södermanlands län	20,79
252.	**Tingsryd**	Kronobergs län	20,78
253.	**Götene**	Västra Götalands län	20,77
254.	**Hofors**	Gävleborgs län	20,76
255.	**Arvidsjaur**	Norrbottens län	20,67
256	**Hällefors**	Örebro län	20,62
257.	**Berg**	Jämtlands län	20,61
258.	**Lilla Edet**	Västra Götalands län	20,57
259.	**Valdemarsvik**	Östergötlands län	20,56
260.	**Tierp**	Uppsala län	20,55
261.	**Färgelanda**	Västra Götalands län	20,48
262.	**Grums**	Värmlands län	20,40
263.	**Heby**	Västmanlands län	20,37
264.	**Hallsberg**	Örebro län	20,30
265.	**Örkelljunga**	Skåne län	20,24
266.	**Tanum**	Västra Götalands län	20,14
267.	**Strömsund**	Jämtlands län	20,10
268.	**Nordmaling**	Västerbottens län	20,03
269.	**Munkfors**	Värmlands län	20,01
270.	**Ovanåker**	Gävleborgs län	19,79
271.	**Nybro**	Kalmar län	19,77
272.	**Vaggeryd**	Jönköpings län	19,77
273.	**Kungsör**	Västmanlands län	19,69
274.	**Ödeshög**	Östergötlands län	19,68
275.	**Bengtsfors**	Västra Götalands län	19,68
276.	**Filipstad**	Värmlands län	19,68
277.	**Norsjö**	Västerbottens län	19,64
278.	**Årjäng**	Värmlands län	19,59
279.	**Eda**	Värmlands län	19,51
280.	**Gullspång**	Västra Götalands län	19,48

	Municipality	Län	Creative Class %
281.	**Älvsbyn**	Norrbottens län	19,48
282.	**Ånge**	Västernorrlands län	19,35
283.	**Uppvidinge**	Kronobergs län	19,19
284.	**Åsele**	Västerbottens län	19,06
285.	**Ockelbo**	Gävleborgs län	18,64
286.	**Nordanstig**	Gävleborgs län	18,51
287.	**Askersund**	Örebro län	18,49
288.	**Lessebo**	Kronobergs län	18,21
289.	**Älvdalen**	Dalarnas län	18,12
290.	**Vansbro**	Dalarnas län	18,10

Appendix V: The Swedish Municipalities Creativity Index

	Municipality	Län	SMCI	Talent (rank)	Technology (rank)	Tolerance (rank)
1.	**Södertälje**	Stockholms län	0,629	38	1	6
2.	**Stockholm**	Stockholms län	0,604	4	11	1
3.	**Danderyd**	Stockholms län	0,568	1	4	31
4.	**Lund**	Skåne län	0,557	2	6	11
5.	**Solna**	Stockholms län	0,512	3	13	13
6.	**Sundbyberg**	Stockholms län	0,467	10	9	7
7.	**Malmö**	Skåne län	0,465	16	23	2
8.	**Lidingö**	Stockholms län	0,461	5	14	14
9.	**Göteborg**	Västra Götalands län	0,461	13	24	3
10.	**Uppsala**	Uppsala län	0,449	7	20	10
11.	**Nacka**	Stockholms län	0,445	9	17	8
12.	**Linköping**	Östergötlands län län	0,417	14	5	34
13.	**Täby**	Stockholms län	0,413	6	12	39
14.	**Mölndal**	Västra Götalands län	0,377	11	15	47
15.	**Umeå**	Västerbottens län	0,370	15	44	15
16.	**Sollentuna**	Stockholms län	0,366	8	39	41
17.	**Järfälla**	Stockholms län	0,351	31	8	26
18.	**Helsingborg**	Skåne län	0,345	30	35	9
19.	**Växjö**	Kronobergs län	0,341	18	53	12
20.	**Västerås**	Västmanlands län	0,339	20	10	44
21.	**Borås**	Västra Götalands län	0,337	46	47	5
22.	**Botkyrka**	Stockholms län	0,327	57	62	4
23.	**Karlstad**	Värmlands län	0,318	17	36	32
24.	**Huddinge**	Stockholms län	0,309	19	65	18
25.	**Örebro**	Örebro län	0,306	27	52	17
26.	**Falun**	Dalarnas län	0,296	26	58	19
27.	**Östersund**	Jämtlands län	0,295	29	45	22
28.	**Lomma**	Skåne län	0,290	12	77	127
29.	**Luleå**	Norrbottens län	0,287	22	30	59
30.	**Vaxholm**	Stockholms län	0,287	21	70	30
31.	**Gävle**	Gävleborgs län	0,287	48	28	21
32.	**Upplands Väsby**	Stockholms län	0,284	23	56	38
33.	**Karlskrona**	Blekinge län	0,279	32	32	48
34.	**Sandviken**	Gävleborgs län	0,276	131	3	69
35.	**Sundsvall**	Västernorrlands län	0,264	36	34	53
36.	**Kalmar**	Kalmar län	0,263	28	46	62
37.	**Halmstad**	Hallands län	0,259	51	71	20
38.	**Partille**	Västra Götalands län	0,258	25	54	72
39.	**Haninge**	Stockholms län	0,256	84	25	28
40.	**Åtvidaberg**	Östergötlands län	0,253	138	2	213
41.	**Nyköping**	Södermanlands län	0,252	56	48	33
42.	**Älmhult**	Kronobergs län	0,251	62	51	25
43.	**Jönköping**	Jönköpings län	0,250	37	43	67
44.	**Perstorp**	Skåne län	0,247	109	7	135
45.	**Karlskoga**	Örebro län	0,244	73	18	85
46.	**Vallentuna**	Stockholms län	0,241	47	61	45

	Municipality	Län	SMCI	Talent (rank)	Technology (rank)	Tolerance (rank)
47.	**Vellinge**	Skåne län	0,240	24	91	95
48.	**Trollhättan**	Västra Götalands län	0,238	49	86	37
49.	**Norrköping**	Östergötlands län	0,237	60	79	29
50.	**Härnösand**	Västernorrlands län	0,237	43	40	93
51.	**Skellefteå**	Västerbottens län	0,236	78	59	24
52.	**Alingsås**	Västra Götalands län	0,236	52	41	66
53.	**Härryda**	Västra Götalands län	0,234	40	64	75
54.	**Eskilstuna**	Södermanlands län	0,233	71	57	36
55.	**Ekerö**	Stockholms län	0,233	34	102	56
56.	**Salem**	Stockholms län	0,232	39	97	54
57.	**Skövde**	Västra Götalands län	0,230	55	78	46
58.	**Värmdö**	Stockholms län	0,229	64	114	27
59.	**Kungsbacka**	Hallands län	0,228	35	82	80
60.	**Österåker**	Stockholms län	0,224	50	75	58
61.	**Kristianstad**	Skåne län	0,224	58	148	35
62.	**Burlöv**	Skåne län	0,219	76	153	23
63.	**Höganäs**	Skåne län	0,219	42	37	185
64.	**Borge**	Dalarnas län	0,213	75	90	43
65.	**Staffanstorp**	Skåne län	0,209	33	99	161
66.	**Uddevalla**	Västra Götalands län	0,208	63	81	73
67.	**Sigtuna**	Stockholms län	0,201	160	29	50
68.	**Knivsta**	Uppsala län	0,199	41	113	151
69.	**Tyresö**	Stockholms län	0,196	61	156	74
70.	**Lerum**	Västra Götalands län	0,194	44	152	124
71.	**Landskrona**	Skåne län	0,193	90	76	63
72.	**Strängnäs**	Södermanlands län	0,193	70	87	91
73.	**Gotland**	Gotlands län	0,193	95	155	40
74.	**Ystad**	Skåne län	0,191	67	159	70
75.	**Kungälv**	Västra Götalands län	0,190	66	172	77
76.	**Skara**	Västra Götalands län	0,189	108	120	42
77.	**Varberg**	Hallands län	0,186	65	219	81
78.	**Ängelholm**	Skåne län	0,185	54	106	144
79.	**Ale**	Västra Götalands län	0,184	80	108	90
80.	**Haparanda**	Norrbottens län	0,182	206	228	16
81.	**Örnsköldsvik**	Västernorrlands län	0,182	77	55	155
82.	**Upplands-Bro**	Stockholms län	0,180	115	126	49
83.	**Flen**	Södermanlands län	0,179	164	22	136
84.	**Stenungsund**	Västra Götalands län	0,178	59	104	167
85.	**Håbo**	Uppsala län	0,175	81	124	97
86.	**Simrishamn**	Skåne län	0,175	101	49	145
87.	**Karlshamn**	Blekinge län	0,174	82	118	102
88.	**Vänersborg**	Västra Götalands län	0,173	72	154	118
89.	**Ulricehamn**	Västra Götalands län	0,173	128	60	94
90.	**Hammarö**	Värmlands län	0,172	53	100	217
91.	**Piteå**	Norrbottens län	0,172	79	177	101
92.	**Arboga**	Västmanlands län	0,169	45	190	222
93.	**Nynäshamn**	Stockholms län	0,167	85	88	138
94.	**Fagersta**	Västmanlands län	0,167	186	21	166
95.	**Hässleholm**	Skåne län	0,167	93	184	83

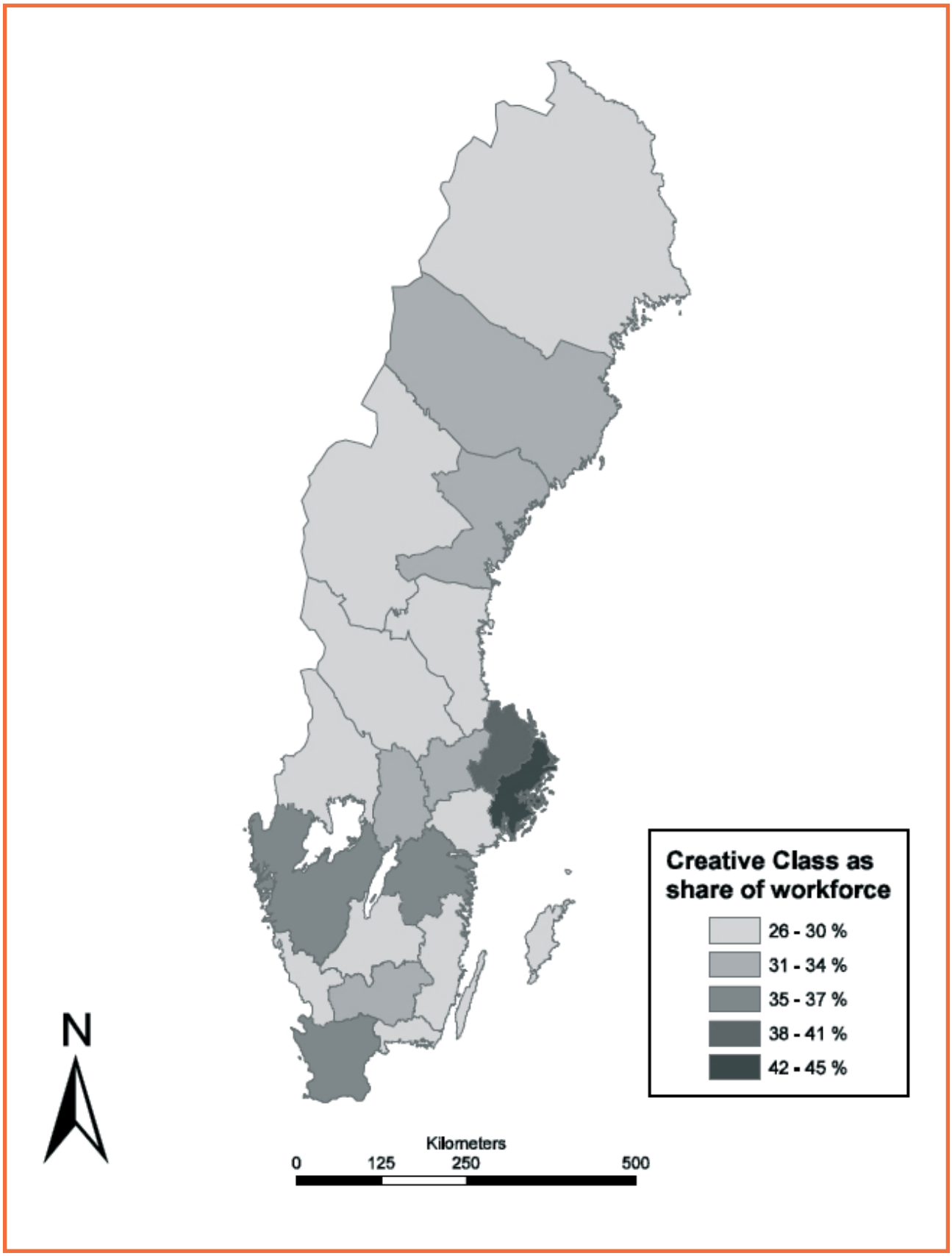
	Municipality	Län	SMCI	Talent (rank)	Technology (rank)	Tolerance (rank)
96.	**Åmål**	Västra Götalands län	0,166	162	19	237
97.	**Värnamo**	Jönköpings län	0,165	114	66	125
98.	**Dals-Ed**	Västra Götalands län	0,164	147	38	148
99.	**Svalöv**	Skåne län	0,164	88	273	76
100.	**Hudiksvall**	Gävleborgs län	0,163	104	101	114
101.	**Krokom**	Jämtlands län	0,162	116	192	64
102.	**Trelleborg**	Skåne län	0,161	103	123	111
103.	**Eslöv**	Skåne län	0,161	99	93	128
104.	**Norrtälje**	Stockholms län	0,161	145	163	52
105.	**Lysekil**	Västra Götalands län	0,159	120	73	133
106.	**Enköping**	Uppsala län	0,159	110	134	96
107.	**Strömstad**	Västra Götalands län	0,159	134	167	61
108.	**Ludvika**	Dalarnas län	0,159	87	131	142
109.	**Båstad**	Skåne län	0,157	69	221	168
110.	**Åre**	Jämtlands län	0,156	102	74	177
111.	**Gislaved**	Jönköpings län	0,156	208	67	55
112.	**Härjedalen**	Jämtlands län	0,155	193	16	265
113.	**Lidköping**	Västra Götalands län	0,155	86	241	121
114.	**Mjölby**	Östergötlands län	0,155	151	33	201
115.	**Ljungby**	Kronobergs län	0,155	142	111	88
116.	**Söderhamn**	Gävleborgs län	0,155	177	135	51
117.	**Kävlinge**	Skåne län	0,154	68	160	211
118.	**Katrineholm**	Södermanlands län	0,154	125	181	84
119.	**Eksjö**	Jönköpings län	0,152	74	243	170
120.	**Finspång**	Östergötlands län	0,149	83	165	179
121.	**Arvika**	Värmlands län	0,149	148	205	65
122.	**Ronneby**	Blekinge län	0,149	127	166	104
123.	**Trosa**	Södermanlands län	0,149	122	98	139
124.	**Falkenberg**	Hallands län	0,147	167	187	60
125.	**Höör**	Skåne län	0,147	100	252	117
126.	**Lindesberg**	Örebro län	0,146	124	132	131
127.	**Leksand**	Dalarnas län	0,146	118	223	108
128.	**Nykvarn**	Stockholms län	0,144	135	249	89
129.	**Hörby**	Skåne län	0,143	140	157	109
130.	**Bollnäs**	Gävleborgs län	0,142	139	204	92
131.	**Vännäs**	Västerbottens län	0,140	96	194	171
132.	**Mullsjö**	Jönköpings län	0,140	106	69	249
133.	**Sjöbo**	Skåne län	0,139	201	31	206
134.	**Lycksele**	Västerbottens län	0,139	91	147	207
135.	**Mariestad**	Västra Götalands län	0,138	155	151	107
136.	**Mark**	Västra Götalands län	0,138	159	158	105
137.	**Mora**	Dalarnas län	0,138	111	137	178
138.	**Söderköping**	Östergötlands län	0,138	105	115	202
139.	**Nässjö**	Jönköpings län	0,137	179	72	143
140.	**Gnesta**	Södermanlands län	0,137	89	225	197
141.	**Gnosjö**	Jönköpings län	0,137	251	26	184
142.	**Nora**	Örebro län	0,136	94	116	238
143.	**Bollebygd**	Västra Götalands län	0,134	113	185	173
144.	**Falköping**	Västra Götalands län	0,134	154	136	129

	Municipality	Län	SMCI	Talent (rank)	Technology (rank)	Tolerance (rank)
145.	**Ljusdal**	Gävleborgs län	0,134	152	50	247
146.	**Vadstena**	Östergötlands län	0,133	92	230	200
147.	**Köping**	Västmanlands län	0,133	187	128	110
148.	**Laholm**	Hallands län	0,131	190	214	79
149.	**Motala**	Östergötlands län	0,130	144	164	146
150.	**Säter**	Dalarnas län	0,129	130	212	153
151.	**Gagnef**	Dalarnas län	0,129	132	258	134
152.	**Sollefteå**	Västernorrlands län	0,129	123	94	241
153.	**Orust**	Västra Götalands län	0,128	178	95	154
154.	**Älvkarleby**	Uppsala län	0,128	181	259	87
155.	**Olofström**	Blekinge län	0,127	235	138	71
156.	**Rättvik**	Dalarnas län	0,127	175	255	98
157.	**Malung**	Dalarnas län	0,126	226	222	57
158.	**Hallstahammar**	Västmanlands län	0,124	188	169	122
159.	**Sölvesborg**	Blekinge län	0,124	183	206	115
160.	**Tjörn**	Västra Götalands län	0,123	98	253	223
161.	**Kristinehamn**	Värmlands län	0,123	141	170	181
162.	**Hylte**	Hallands län	0,122	231	175	78
163.	**Kiruna**	Norrbottens län	0,122	119	84	275
164.	**Malå**	Västerbottens län	0,122	202	68	187
165.	**Hedemora**	Dalarnas län	0,122	198	197	112
166.	**Svedala**	Skåne län	0,121	133	246	174
167.	**Borgholm**	Kalmar län	0,121	149	146	191
168.	**Säffle**	Värmlands län	0,120	176	63	243
169.	**Kalix**	Norrbottens län	0,120	117	83	279
170.	**Torsby**	Värmlands län	0,119	165	144	175
171.	**Östhammar**	Uppsala län	0,118	143	121	228
172.	**Kramfors**	Västernorrlands län	0,117	166	129	193
173.	**Skurup**	Skåne län	0,117	150	263	160
174.	**Boden**	Norrbottens län	0,116	97	119	282
175.	**Tranås**	Jönköpings län	0,115	137	168	225
176.	**Avesta**	Dalarnas län	0,114	189	171	152
177.	**Alvesta**	Kronobergs län	0,114	222	188	113
178.	**Åstorp**	Skåne län	0,114	246	232	82
179.	**Kil**	Värmlands län	0,114	171	130	205
180.	**Sala**	Västmanlands län	0,112	126	250	229
181.	**Tibro**	Västra Götalands län	0,112	223	235	106
182.	**Töreboda**	Västra Götalands län	0,111	197	89	212
183.	**Oxelösund**	Södermanlands län	0,111	211	183	132
184.	**Markaryd**	Kronobergs län	0,111	272	122	100
185.	**Emmaboda**	Kalmar län	0,110	239	42	252
186.	**Tidaholm**	Västra Götalands län	0,110	236	275	86
187.	**Övertorneå**	Norrbottens län	0,110	163	257	172
188.	**Tranemo**	Västra Götalands län	0,108	215	179	141
189.	**Mörbylånga**	Kalmar län	0,108	121	242	261
190.	**Storuman**	Västerbottens län	0,108	170	162	218
191.	**Osby**	Skåne län	0,108	168	213	194
192.	**Orsa**	Dalarnas län	0,107	180	275	157
193.	**Hjo**	Västra Götalands län	0,107	161	237	203

	Municipality	Län	SMCI	Talent (rank)	Technology (rank)	Tolerance (rank)
194.	**Vara**	Västra Götalands län	0,107	228	133	147
195.	**Skinnskatteberg**	Västmanlands län	0,107	213	275	119
196.	**Årjäng**	Värmlands län	0,106	274	109	123
197.	**Habo**	Jönköpings län	0,106	112	127	286
198.	**Bromölla**	Skåne län	0,106	172	262	182
199.	**Klippan**	Skåne län	0,105	204	140	189
200.	**Laxå**	Örebro län	0,105	199	80	248
201.	**Ydre**	Östergötlands län	0,105	174	245	192
202.	**Västervik**	Kalmar län	0,105	129	198	271
203.	**Sunne**	Värmlands län	0,104	205	209	162
204.	**Jokkmokk**	Norrbottens län	0,104	146	178	262
205.	**Tingsryd**	Kronobergs län	0,104	247	268	99
206.	**Herrljunga**	Västra Götalands län	0,104	233	117	165
207.	**Robertsfors**	Västerbottens län	0,104	157	271	204
208.	**Pajala**	Norrbottens län	0,103	173	186	227
209.	**Mellerud**	Västra Götalands län	0,102	230	265	120
210.	**Götene**	Västra Götalands län	0,102	220	191	156
211.	**Oskarshamn**	Kalmar län	0,101	136	200	270
212.	**Vårgårda**	Västra Götalands län	0,101	185	105	259
213.	**Gällivare**	Norrbottens län	0,100	153	199	260
214.	**Örkelljunga**	Skåne län	0,100	250	256	116
215.	**Öckerö**	Västra Götalands län	0,100	107	215	285
216.	**Hällefors**	Örebro län	0,099	279	195	103
217.	**Vindeln**	Västerbottens län	0,098	210	139	210
218.	**Vilhelmina**	Västerbottens län	0,098	194	275	180
219.	**Vansbro**	Dalarnas län	0,098	290	27	266
220.	**Timrå**	Västernorrlands län	0,098	216	96	239
221.	**Smedjebacken**	Dalarnas län	0,096	242	274	130
222.	**Arjeplog**	Norrbottens län	0,096	234	107	215
223.	**Eda**	Värmlands län	0,096	288	275	68
224.	**Sotenäs**	Västra Götalands län	0,095	184	218	231
225.	**Svenljunga**	Västra Götalands län	0,095	253	224	137
226.	**Bjuv**	Skåne län	0,094	225	272	150
227.	**Surahammar**	Västmanlands län	0,093	241	217	163
228.	**Strömsund**	Jämtlands län	0,093	257	220	140
229.	**Forshaga**	Värmlands län	0,092	196	251	219
230.	**Munkedal**	Västra Götalands län	0,092	217	149	224
231.	**Berg**	Jämtlands län	0,091	224	125	236
232.	**Tanum**	Västra Götalands län	0,090	212	254	196
233.	**Sorsele**	Västerbottens län	0,089	237	210	186
234.	**Degerfors**	Örebro län	0,089	270	112	195
235.	**Ragunda**	Jämtlands län	0,089	182	110	283
236.	**Kumla**	Örebro län	0,088	218	211	214
237.	**Boxholm**	Östergötlands län	0,086	219	85	280
238.	**Bengtsfors**	Västra Götalands län	0,086	275	201	158
239.	**Hagfors**	Värmlands län	0,086	240	145	230
240.	**Lekeberg**	Örebro län	0,085	169	275	267
241.	**Uppvidinge**	Kronobergs län	0,085	285	143	164
242.	**Karlsborg**	Västra Götalands län	0,084	156	275	277

	Municipality	Län	SMCI	Talent (rank)	Technology (rank)	Tolerance (rank)
243.	**Ockelbo**	Gävleborgs län	0,084	281	270	126
244.	**Vaggeryd**	Jönköpings län	0,084	258	189	198
245.	**Vetlanda**	Jönköpings län	0,083	214	180	258
246.	**Grästorp**	Västra Götalands län	0,083	195	244	263
247.	**Nordmaling**	Västerbottens län	0,083	244	196	220
248.	**Lessebo**	Kronobergs län	0,082	282	207	149
249.	**Tomelilla**	Skåne län	0,082	207	239	257
250.	**Nybro**	Kalmar län	0,082	249	161	226
251.	**Lilla Edet**	Västra Götalands län	0,082	268	275	159
252.	**Hofors**	Gävleborgs län	0,081	261	229	188
253.	**Kungsör**	Västmanlands län	0,081	248	176	232
254.	**Östra Göinge**	Skåne län	0,080	245	226	221
255.	**Hallsberg**	Örebro län	0,079	255	202	216
256.	**Ödeshög**	Östergötlands län	0,079	262	275	176
257	**Färgelanda**	Västra Götalands län	0,079	266	193	208
258	**Aneby**	Jönköpings län	0,079	158	275	284
259	**Valdemarsvik**	Östergötlands län	0,078	256	174	235
260	**Ovanåker**	Gävleborgs län	0,078	278	227	169
261	**Kinda**	Östergötlands län	0,077	203	260	264
262	**Dorotea**	Västerbottens län	0,077	263	216	209
263	**Vimmerby**	Kalmar län	0,077	227	247	245
264	**Bräcke**	Jämtlands län	0,076	200	236	276
265	**Tierp**	Uppsala län	0,076	264	150	242
266	**Heby**	Västmanlands län	0,076	273	234	199
267	**Filipstad**	Värmlands län	0,074	284	233	183
268	**Arvidsjaur**	Norrbottens län	0,074	209	173	281
269	**Vingåker**	Södermanlands län	0,073	254	208	246
270	**Älvdalen**	Dalarnas län	0,073	289	92	234
271	**Grums**	Värmlands län	0,072	277	266	190
272	**Askersund**	Örebro län	0,070	269	238	233
273	**Norberg**	Västmanlands län	0,069	238	275	254
274	**Hultsfred**	Kalmar län	0,068	252	269	244
275	**Åsele**	Västerbottens län	0,068	271	240	240
276	**Bjurholm**	Västerbottens län	0,067	221	275	273
277	**Högsby**	Kalmar län	0,067	229	261	268
278	**Ånge**	Västernorrlands län	0,067	276	103	278
279	**Sävsjö**	Jönköpings län	0,065	243	248	274
280	**Nordanstig**	Gävleborgs län	0,065	286	142	256
281	**Torsås**	Kalmar län	0,065	192	275	287
282	**Munkfors**	Värmlands län	0,065	287	141	253
283	**Mönsterås**	Kalmar län	0,064	191	231	290
284	**Essunga**	Västra Götalands län	0,064	260	275	250
285	**Storfors**	Värmlands län	0,064	259	275	251
286	**Gullspång**	Västra Götalands län	0,063	283	182	255
287	**Ljusnarsberg**	Örebro län	0,057	267	275	269
288	**Överkalix**	Norrbottens län	0,052	232	267	288
289	**Norsjö**	Västerbottens län	0,051	280	264	272
290	**Älvsbyn**	Norrbottens län	0,047	265	203	289

Map 1: Swedish Creative Class



Map 2: Swedish Creativity Index Ranking

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1 The Creative Class Group (CCG) is a global think tank headquartered in Washington, DC that develops new ideas and strategies for business, government and community competitiveness. CCG's European projects and operations are handled by Creativity Group Europe, a company founded by Richard Florida, Irene Tinagli and Giovanni Padula. For additional information please visit: www.creativeclass.org

2 The School of Business, Economics and Law at Göteborg University was founded in 1923 for promoting education and research within the business area. The school consists of the departments of: Business Administration, Economics, Law, Economic History, Human and Economic Geography, GRI and several research centers. As of today, the School counts about 4000 students. www.handels.gu.se

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