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Investigation on the economic contribution of the cultural and creative industries in Denmark from a regional perspective

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Dansk resume

Titel: Undersøgelse af den økonomiske betydning af kulturelle og kreative erhverv i Danmark set ud fra et regionalt synspunkt.

Denne undersøgelse har til formål at introducere princippet for satellitregnskaber for turisme for således at kunne konstruere de regionale satellitregnskaber inden for de kulturelle og kreative erhverv i Danmark. Undersøgelsen omfatter elleve kulturelle produkter og tre kreative produkter inden for de kulturelle og kreative erhverv. Fordelen ved satellitregnskaber er, at de særlige regnskaber, fx inden for de kulturelle og kreative erhverv, kan undersøges i forhold til nationalregnskabet gennem anvendelse af detaljerede produktinformationer. Denne metode sikrer, at satellitregnskaberne er konsistente med de nationale regnskaber. De særlige regnskaber (fx inden for turisme, kulturelle og kreative erhverv) kan desuden sammenlignes med andre økonomiske sektorer. Det er ligeledes enkelt at vurdere den økonomiske betydning af disse særlige regnskaber.

Ud fra metoden om satellitregnskaber kan det fastslås, at bruttoproduktionen hos de kulturelle og kreative erhverv skønnes at ligge på 86,9 mia. DKK i 2006. Værditilvæksten er 43,4 mia. DKK og disse erhverv genererer 88.124 fuldtidssvarende stillinger i Danmark. Set ud fra produktion, værditilvækst samt jobs bidrager de kulturelle og kreative erhverv med ca. 3 % til den samlede nationalproduktion, værditilvækst og beskæftigelse.

Ud fra et regionalt synspunkt anvendes to metoder til sammenligning af regionernes indbyrdes placeringer inden for de kulturelle og kreative erhverv. Den absolutte markedsandel for kulturelle og kreative erhverv beregnes på baggrund af andele for produktionsværdi samt antal stillinger i hver region i forhold til den samlede nationalproduktion samt antal stillinger inden for de kulturelle og kreative erhverv. Konklusionen af sammenligning mellem regionerne er, at kulturelle og kreative aktiviteter primært er koncentreret i byerne frem for i landområder og i de perifere områder, især hvad angår de kreative erhverv. Landområderne og de perifere områder sakker bagud.

Metoden med relative markedsandele er nyttig i forbindelse med sammenligning af regionernes indbyrdes konkurrenceposition inden for en given sektor eller et givent erhverv. Resultatet af denne metode er, at kommunerne i Storkøbenhavn har en relativt bedre konkurrenceposition inden for de kulturelle og kreative erhverv. Bykommuner, såsom Århus og Odense, har ligeledes en relativt større markedsandel end øvrige kommuner. Landområderne og de perifere områder placeres igen i en dårligere position.

Abstract

This paper introduces the principle of tourism satellite accounts in order to construct the regional satellite accounts for culture and creative industries in Denmark. Eleven cultural products and three creative products within the cultural and creative industries are investigated. The advantage of satellite accounts is that the usage of detailed level of product information allows special accounts such as culture and creative industries to be distinguished from the national accounts. This method also secures consistency between satellite accounts and the national accounts. The specific accounts (e.g. tourism, culture and creative industries) can be compared with other economic sectors. It is also easy to evaluate the economic contribution of these specific accounts.

The principle findings show that the gross output from culture and creative industries is estimated to be 86.9 billion DKK in 2006. The gross value added is 43.4 billion DKK and these industries create 88,124 full-time equivalent jobs in Denmark. Looking at production, gross value added and employment, culture and creative industries contribute with approximately 3% to the national total production, gross value added and employment.

From a regional perspective, two methods are adopted to compare regional positions within the culture and creative industries. The absolute market share for cultural and creative industries is calculated by using the shares of production values and number of employment of each region in comparison with the national total production and employment in the culture and creative industries. The conclusion of the regional comparison shows that cultural and creative activities tend to be more concentrated in the urban areas than in the rural and peripheral areas, especially regarding the creative industries. The rural and peripheral areas are left behind.

The relative market share method is useful to compare the regional competitive position related to a specific sector or industry. The conclusion from this method shows that municipalities within the greater Copenhagen area have a relatively better competitive position in regards to the culture and creative industries. The urban municipalities, like Aarhus (in eastern Jutland) and Odense (in Funen), also have a better relative market shares than other municipalities. The rural and peripheral areas again are placed in inferior position.

1 Introduction

From tourism and culture to experience economy, these terms become more and more involved in our lives. Investigation on the economic contribution of these activities appears more and more in the literature and in publications. The European Commission has conducted a survey on cultural values within the European countries (European Commission, 2007). The European Commission has realised that *"culture and creativity are important drivers for personal development, social cohesion and economic growth. Today's strategy promoting intercultural understanding confirms culture's place at the heart of our policies"* (quoted from speech by José Manuel Barroso, the European Commission President at the event for the European Agenda for Culture).

"Cultural industries do not simply represent a significant set of economic activities; they are also of enormous social importance. By design and accident, they exert an extraordinary influence on our value, our attitudes and our lifestyles" (Lampel, J,, J, Shamsie and T, K, Lant, 2006, p8). This paper does not focus on the social impact of cultural activities; instead it focuses on the economic aspect of cultural and creative activities. Several countries have already made investigations on the economic contribution of cultural and creative activities. For example the economic contribution of cultural and creative industries in the UK is estimated to be 4% of GDP and 5% of the total employment in the UK (Department for Culture, Media and Sport, UK, 2002). In Norway it is estimated that culture and creative industries account to be 3.5% of GDP and the total employment (Haraldsen, 2007). In Singapore the contribution of cultural and creative is estimated to be 3.2% of GDP (Heng, Choo and Ho, 2003).

The empirical challenge facing economists in evaluating the cultural and creative economy is not only in the field of methodology development, but also in defining and accounting the cultural and creative activities. A good example can be taken from the tourism economy amongst the service industries. Led by the major international organisations, such as United Nations Statistics Division, World Tourism Organisation (UNWTO), Organisation for Economic Co-operation and Development (OECD) and Eurostat, there has, over the past 10-15 years, been developed a manual for standard definition of tourism industries and tourism products as well as methodologies for accounting and measuring tourism activities (TSA:RMF 2008). The trend in service industries has moved towards an increasing commodification due to an increased usage of the Internet. Today, you can buy a painting on the Internet; you can enjoy a museum exhibition on the Internet; you can surely enjoy a piece of new created music or a movie on the Internet, and already many years ago, young people could play computer games online.

When measuring the economic contribution of certain activities, a precise definition of the activities and using correct accounting methods are necessary procedures before any measurement. This is because, unlike the traditional agriculture and industrial sectors, the culture and creative activities are merged into other general activities in the national account system. For example, architecture and design activities are integrated with other engineering (or business services) activities. If architecture is defined as a creative industry, but not general engineering activities, a concrete accounting method has to be applied in order to separate the activities to be measured.

The purpose of this paper is to investigate the economic contribution of cultural and creative industries in the Danish economy. The economic contribution of cultural and creative industries should be able to be compared with other industries like agriculture and tourism. The paper includes the following sections: in the second section, the definitions of culture and creative activities are addressed. These definitions are compared with the terms used for tourism definition which is widely adopted by UNWTO and many countries. Section three discusses the methods for accounting cultural and creative industries. We compare the arguments from both supply approaches and demand approaches. Section four presents the results from the investigation on cultural and creative industries in Denmark. The size of cultural economy is compared with tourism industries as well as with agriculture and transport sectors. Section five shows cultural industries in the regions and the major cities in Denmark. Two methods are adopted to compare the culture and creative industries between the regions. This method shows that cultural industries are mostly concentrated in the urban areas, especially in regards to the creative activities. The conclusion is to be found in the final section.

2 Definition of cultural and creative industries and their products

When talking about cultural industries, most people will immediately associate to museums, theater, movies, television, books, music, computer games and possibly also sports. However, when we address the economic contribution of cultural industries, the definition of cultural industries or cultural commodities has to be clear.

In the book "*The Business of Culture*" the authors claim that *"defining cultural industries must begin with the recognition that the term brings together two domains: culture and industry. Culture is the product of ongoing symbolic human activity that is as old and as pervasive as human society itself. Culture is intrinsic to what makes us human. It is manifested in activities as simple as a mother's lullaby or as complex as a Kabuki play. Industry, by contrast, is a system of production, distribution and marketing that delivers products to consumers. The system is created by specialist organization and sustained by consumer demand. Bringing culture and industry together therefore gives rise to culture industries: systems of production, distribution and marketing that deliver symbolic products to consumers, where each cultural industry is made up of firms that specialize in the production, distribution and marketing of specific cultural products, and is sustained by consumer demand for these products"* (Lampel, J,, Shamsie, J, and Lant, Lant, T, K, (2006, p6). From the above definition, it can be stated that the definition stresses both the supply side and demand side of cultural activities. The production, distribution and marketing of cultural products are vital for the supply side of the activities; however, without consumer demand for these products, the industries can hardly exist.

Unlike the traditional industries, cultural products are not being used in a practical way to solve a practical problem. For Hirsch (1972) the definition of cultural industries began with the defining of cultural products as *"non-material goods directed at a public of consumers, for whom they generally serve an aesthetic or expressive, rather than clearly utilitarian function"* (Hirsch (1972, p 642). The emphasis on cultural products as defining cultural industries was shared by Lawrence and Philips (2002, p43), who also saw cultural goods as *"products that are consumed in an act of interpretation rather than being used,"* but they opened the definition further by arguing that cultural products are *"goods and services that are valued for their 'meaning'."* Power (2002) saw cultural products as a good point of departure, but expanded

Hirsch's (1972) definition even further. Power argued that cultural industries consist of *"'economic actors' involved in the production of goods and services whose value is primarily or largely determined by the virtue of their aesthetic, semiotic, sensory, or experiential content"* (Power, 2002, p, 106).

The most likely way to produce a coherent definition of the cultural industries is to see the boundaries between such symbolic, cultural production and other "non-cultural" kinds of production as porous, provisional and relative, and to think about these boundaries in terms of the relationship between the utilitarian functions and non-utilitarian (artistic/aesthetic/entertainment) functions of symbolic goods (see Hirsch 1972; Hesmondhalgh, 2002, 2005; Power & Scott 2004). These definitions can partly distinguish the industries that produce the pure non-material goods, like museums and theater, from those that produce only the material goods, such as agriculture. Many industries could also produce goods that contain both material and non-material factors, such as cars, furniture and clothes. Cars and furniture are material products, but they also have the aesthetic, semiotic, sensory or experiential characteristics in their contents. Clothes, especially the fashion clothes, definitely have the aesthetic, semiotic and sensory contents.

These definitional problems within the cultural and creative industries have caused the statistical "left-behind" compared to other industries. In connection with the development of the manual for tourism satellite accounts, tourism was defined from the demand side and the definition of cultural and creative products can learn from this concept and be defined from the demand side rather than from the supply side. For certain pure cultural products, such as museums, theater and concerts, it gives the same volume whether accounting from the supply or the demand sides. This is because these industries produce pure cultural and non-material products. For some creative products, like architecture and design, their industries produce both conventional material products and non-material, aesthetic and semiotic contents products. For these creative products, it is better to distinguish the supply, for which the production produces the conventional products, from the creative, aesthetic and sensory contents of these products.

The cultural and creative products (both goods and services) included in this paper are listed in Table 1. There are fourteen products included in the investigation. They can be categorized into three types: (1) tourism and cultural - the products are demanded by both tourists and local residents. This again is influenced by how we define tourists. According to UNWTO's definition, tourists are those who travel from their usual environment for more than 24 hours, but less than a year, for leisure, business or other personal purposes; (2) cultural – the products are mostly demanded by the local residents; (3) the creative and business service-type – the products are demanded mostly by private businesses and public organizations. This investigation includes the service-types of cultural and creative products; it does not include the creative products from the traditional manufacture industries like cars, furniture and fashion clothes.

Table 1 List of cultural and creative products included in this investigation

(1) Tourism / Cultural	(2) Cultural	(3) Creative /business services
Amusement parks Museums Theatre and concerts Botanical and zoologist garden Commercial sports activities	Film/video and cinema Radio and TV Press bureau Library and archives Sport clubs Lottery and games	Architecture and landscape architecture Advertisement Photography and indoor design

3 Methods for accounting cultural and creative industries

The methodology used for accounting cultural and creative industries is similar to the tourism satellite accounts. The investigation goes in depth with the each cultural product in the national accounts. We define fourteen products (eleven cultural and three creative products) as cultural and creative products. The eleven cultural products can be found directly in the Danish national accounts under cultural industries, while for the three creative products, data are buried in different sectors under business services and others. Even if the eleven cultural products can be found in the national accounts; there is no information about the regional production of these products.

In most countries, there are no detailed national (or regional) accounts for cultural and creative products. In order to construct regional accounts for culture and creative industries, we need to have at least two sets of data. One set of data are national "make and use tables" with information divided by product. Another set of data are regional production accounts with detailed industry information.

These two sets of data can be merged to create regional satellite accounts for cultural and creative industries. The Danish regional production accounts provide the detailed cultural and creative sectors at a municipality level. This can be applied to calculate the shares of cultural and creative industries by each municipality. These shares, hence, are used to break down the national "make and use tables" to obtain the regional satellite accounts for cultural and creative production.

One of the reasons for making satellite accounts is to estimate the size of a specific sector's economy, including its production value, GDP and employment. These specific sectors, such as tourism, culture and creative as well as information, communication and technology (ICT) are often not included in the national accounts. Another reason for making satellite accounts is that we need to compare the contribution of these different economic sectors. The principle of making a satellite account is to keep this special account consistent with the national accounts. With other words, *the satellite accounts function as supplementary accounts to national accounts without ruining the total consistency*.

The following sections will present the data and results from a regional satellite account within cultural and creative industries. The estimated gross output, gross value-added and employment can be compared with other economic sectors. It also allows a regional comparison.

4 The cultural industries in Denmark

The gross output from the culture and creative industries is estimated to be 86.9 billion DKK in 2006, which accounts for about 3% of the national total gross output in Denmark (see table 1). Gross value added (GVA) from culture and creative industries is estimated to be 43.4 billion DKK and the employment in these industries is adding up to 88,124 full-time equivalent jobs in 2006, both GVA and employment account for approximately 3% of the national total (see table 2 and table 3).

These three tables also show the time series from 1996 to 2006 and the yearly average change rates. It shows that some sectors, such as architecture, advertising and broadcasting media have higher growth rates than other sectors. Library and archive got negative growth rate in fixed prices. Theater and concerts, museums and print media show lower growth rates and the economic performance in commercial sports is not as good as in the sport clubs.

The last row in each table shows the shares of cultural and creative industries in the national economy. The shares of cultural and creative industries in both gross output and gross value-added are approximately 3% of the total value in the last eleven years, while the shares in employment actually have grown from 2.6% in 1996 to 3.2% in 2006.

Table 2 Gross outputs of the cultural and creative industries in Denmark, 1996-2006

(In current prices, million DKK)

By group of industries	1996	1998	2000	2002	2004	2006	Average changes[1]
Architecture	4,657	4,903	6,376	7,562	8,315	10,834	6.14
Advertising	14,666	16,816	18,603	17,082	16,079	18,987	2.44
Photo/ in-door architecture	3,118	3,943	4,886	5,053	5,422	6,295	3.94
Film, video and cinema	2,386	2,892	2,990	3,611	4,399	4,790	4.74
Broadcast media	4,265	5,070	6,899	6,771	7,698	9,950	6.48
Print media	544	625	825	787	783	768	1.23
Library and archive	6,433	6,638	6,443	7,038	7,326	7,830	-0.57
Theatre and concert	4,236	4,513	4,703	5,180	5,530	6,118	1.30
Museum	2,780	2,891	3,098	3,572	3,754	4,335	1.94
Attractions and parks	1,168	1,334	1,561	1,622	1,620	1,925	2.69
Botanic and zoologist garden	380	445	476	553	632	840	5.52
Commercial sport	3,978	4,269	4,153	4,600	4,900	5,435	0.59
Sport clubs and others	3,219	3,768	4,238	5,132	5,807	7,015	5.42
Lottery and games	1,091	1,178	1,215	1,389	1,481	1,737	2.24
Sum of the above:	52,919	59,284	66,466	69,950	73,748	86,858	2.91
Gross output in DK	1,766,819	1,920,062	2,201,656	2,360,349	2,493,161	2,861,262	2.71
Share of the cultural and creative industries	3.00	3.09	3.02	2.96	2.96	3.04	

Note: [1] Average changes are calculated based on the growth rates of gross output in fixed prices

Sources: Statistics Denmark and own calculation

Table 3 Gross Value Added (GVA) in the cultural and creative industries in Denmark, 1996-2006

(In current prices, million DKK)

By group of industries	1996	1998	2000	2002	2004	2006	Average changes[1]
Architecture	2,584	2,759	3,695	3,890	3,833	4,890	3.03
Advertising	3,527	4,300	4,713	4,520	4,963	5,653	2.97
Photo/ in-door architecture	1,787	2,265	2,924	2,769	3,300	3,831	3.64
Film, video and cinema	1,434	1,664	1,774	2,115	2,413	2,695	3.38
Broadcast media	2,566	2,912	4,066	3,942	4,150	5,595	5.37
Print media	328	361	491	461	430	432	0.00
Library and archive	3,870	3,834	3,807	4,119	4,027	4,531	-1.36
Theatre and concert	2,550	2,598	2,785	3,029	3,022	3,451	0.10
Museum	1,664	1,660	1,829	2,090	2,056	2,488	1.05
Attractions and parks	699	762	920	945	886	1,096	1.76
Botanic and zoologist garden	230	255	281	323	344	486	4.66
Commercial sport	2,393	2,461	2,449	2,692	2,692	3,164	-0.14
Sport clubs and others	1,932	2,161	2,495	2,987	3,175	4,048	4.59
Lottery and games	654	672	715	809	808	990	1.17
Sum of the above:	26,218	28,664	32,944	34,690	36,099	43,351	1.95
GDP in Denmark	918,482	988,835	1,110,898	1,175,635	1,252,883	1,389,317	1.95
Share of the cultural and creative industries	2.85	2.90	2.97	2.95	2.88	3.12	

Note: [1] Average changes are calculated based on the growth rates of GVA in the fixed prices

Sources: Statistics Denmark and own calculation

Table 4 Employment in the cultural and creative industries in Denmark, 1996-2006

(By full-time equivalent jobs)

By group of industries	1996	1998	2000	2002	2004	2006	Average changes[1]
Architecture	7,891	8,396	8,781	9,293	9,048	10,106	2.55
Advertising	9,525	12,030	14,162	14,067	14,291	15,603	5.30
Photo/ in-door architecture	5,858	6,416	8,077	8,163	8,276	9,194	4.73
Film, video and cinema	3,429	4,102	4,389	5,350	5,575	5,516	5.02
Broadcast media	6,064	6,602	7,110	6,495	7,100	7,596	2.38
Print media	589	701	964	784	761	684	2.06
Library and archive	9,218	8,985	8,687	8,871	8,458	7,589	-1.90
Theatre and concert	6,099	6,181	6,692	6,890	7,034	7,058	1.57
Museum	4,098	4,129	4,400	4,885	4,841	4,918	1.94
Attractions and parks	1,339	1,674	2,123	2,122	2,179	2,304	6.05
Botanic and zoologist garden	683	706	738	783	835	929	3.40
Commercial sport	6,442	6,694	6,561	6,873	7,182	6,634	0.34
Sport clubs and others	5,566	5,975	6,871	7,875	7,900	8,112	3.93
Lottery and games	1,484	1,448	1,523	1,749	1,763	1,882	2.55
Sum of the above:	68,285	74,040	81,078	84,201	85,243	88,124	2.61
Total employment	2,584,117	2,668,106	2,712,496	2,745,960	2,697,642	2,766,975	0.69
Share of the cultural and creative industries (%)	2.64	2.77	2.99	3.07	3.16	3.18	

Note: [1] Average changes are the growth rates (%) on a yearly basis

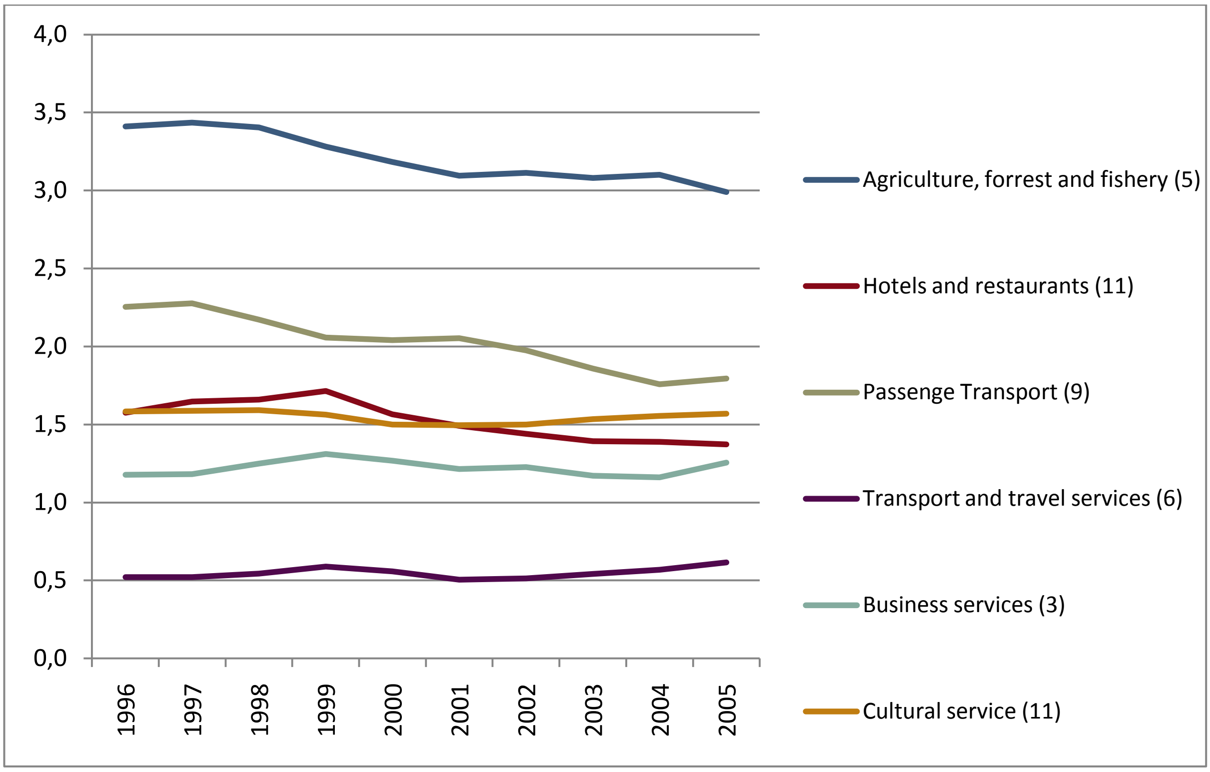
Sources: Statistics Denmark and own calculation,

According to VisitDenmark's report, the tourism consumption was 72.7 billion DKK (following TSA methodology, TSA: RMF 2008). The tourism economy thereby accounts for 1.9% of the total gross output in Denmark (VisitDenmark, 2009). When measuring the gross output in current prices for cultural and creative products produced in the above mentioned fourteen sectors (86.9 billion DKK), it has overtaken the tourism consumption in Denmark.

Figure 1 shows shares of the gross output by different product categories. It should be noticed that culture and creative products are represented in two categories. Compared with the shares of agriculture, forestry and fishery, the *eleven* cultural products keep relative stable (1.5%). Transport and travel services and the *three* creative products in the business service sectors show a minor increase in the recent years.

Looking at the number of employees in the different sectors, we find that agriculture, forestry and fishery have created 82,210 jobs in Denmark, while the hotel and restaurant sectors have employed 91,360 full-time equivalent jobs. The cultural and creative sectors have generated 88,124 jobs in 2006 according to the satellite account approaches.

Figure 1 Share of cultural products compared with other products



Notes: the shares are calculated by gross output by products in fixed prices. The number in the parenthesis shows how many detailed products are included in the calculation

Another comparison can be made from the demand side to compare the composition of each category of products. In the appendix, figures 2-5 show the composition of demand for hotels and restaurants, passenger transport, transport and travel services and cultural services. We here choose to ignore the presentation of business services due to the fact that they are solely demanded by intermediate consumption – that is business demand. The four figures show very clearly that hotels and restaurants are mostly represented in private and business consumption. The passenger transport is also mostly represented by the business consumption; however, the export shares the same as private consumption, which might be due to the passenger air transport. The transport and travel services are dominated by private consumption (80%) in the year 1996; however, the business demand has shown signs of growth as it accounts for nearly 40% of the demand. The cultural service is rather unique, as public consumption and public individual consumption play a role for the demand. The public individual consumption is partly financed by the public arrangement and partly by persons who use the services.

5 The cultural and creative activities – from a regional perspective

This section attempts to answer the question of “how to compare the regional activities in cultural and creative sectors?” As the regional satellite accounts for the cultural and creative industries are made at a regional (a municipality) level, it is possible for the accounts to answer the question of the size of cultural and creative economy in each municipality.

This paper adopts two methods to compare the economic activities at a regional level. The first method consists of using the shares of production values and number of employment in each region in comparison with the national total production and employment within the sectors. These shares are compared with the shares of population and employment in each region. Another method consists of using the relative market shares in the cultural and creative industries. These two methods allow a regional comparison from different angles.

Absolute market share for the cultural and creative industries

Table 5 and table 6 show the share of cultural and creative industries in the fifteen largest municipalities in Denmark by gross output and employment respectively. The fourteen sub-sectors are divided into three groups – all the fourteen sectors, the eleven cultural sectors and the three creative sectors. <u>This division will distinguish the contribution of the higher shares of cultural and creative industries due to their higher shares of creative sectors from the higher shares of cultural sectors.</u>

The first three columns in the two tables show the shares of all fourteen industries, divided into the eleven cultural and the three creative industries. The last two columns show the shares of population and employment in each municipality of the national total. These fifteen municipalities are sorted by the highest shares of the fourteen cultural and creative industries. It is interesting to see that the large urban municipalities seem to have higher shares of culture and creative industries than rural municipalities due to their larger population and number of employees. Large cities like Copenhagen, Aarhus and Odense have relatively higher shares in the cultural and creative industries than others; however, Aalborg, the third largest city in Denmark, the cultural and creative industries account for 3.04% less than its population and employment shares.

It is also interesting to compare the figures between the first three columns. Some municipalities, like Copenhagen, Aarhus and Gentofte are more creative than others, while in Odense, Gladsaxe, Brøndby, Esbjerg and Hvidovre, the cultural industries play bigger roles than the creative industries. The table from the employment measurement (table 6) shows the same patterns.

Table 5 Shares of cultural and creative industries by municipality, 2006

(Calculated by gross output in fixed prices)

Municipality	SCC14	SC11	SC3	SPOP	SEMP
København	31.34	21.62	44.02	9.25	12.93
Aarhus	9.05	7.60	10.94	5.44	6.98
Odense	4.29	5.30	2.97	3.43	3.63
Gladsaxe	3.87	6.02	1.06	1.14	1.27
Frederiksberg	3.68	4.34	2.83	1.69	1.43
Aalborg	3.04	3.48	2.46	3.56	3.74
Gentofte	2.44	2.00	3.00	1.26	1.24
Brøndby	1.67	2.42	0.69	0.62	0.85
Kolding	1.65	1.29	2.11	0.95	1.25
Vejle	1.65	1.51	1.82	1.91	1.98
Viborg	1.45	1.22	1.76	1.60	1.86
Herning	1.39	1.26	1.55	1.53	1.68
Esbjerg	1.21	1.52	0.81	1.68	1.76
Lyngby-Taarbæk	1.18	1.39	1.45	2.10	2.12
Hvidovre	1.14	1.48	0.36	0.91	0.90

Notes:

SCC14 – shares of fourteen cultural and creative industries; SC11 – shares of eleven cultural industries; SC3 – shares of three creative industries; SPOP – shares of population; SEMP – shares of employment.

Table 6 Shares of cultural and creative industries by municipality, 2006

(Calculated by number of employment)

Municipality	SCC14	SC11	SC3	SPOP	SEMP
København	27.96	24.86	32.69	9.25	12.93
Aarhus	9.39	6.88	13.22	5.44	6.98
Odense	4.65	5.37	3.54	3.43	3.63
Gladsaxe	4.08	5.77	1.49	1.14	1.27
Frederiksberg	3.54	4.06	2.75	1.69	1.43
Aalborg	3.34	3.32	3.38	3.56	3.74
Gentofte	2.60	1.88	3.70	1.26	1.24
Brøndby	1.59	2.22	0.65	0.62	0.85
Lyngby-Taarbæk	1.59	1.66	1.48	0.95	1.25
Vejle	1.57	1.49	1.70	1.91	1.98
Kolding	1.44	1.15	1.88	1.60	1.86
Herning	1.41	1.24	1.66	1.53	1.68
Viborg	1.37	1.28	1.51	1.68	1.76
Esbjerg	1.20	1.42	0.87	2.10	2.12
Hvidovre	1.11	1.56	0.41	0.91	0.90

Notes see Table 5.

These two tables show that cultural and creative activities tend to be more concentrated in the urban areas than in the rural and peripheral areas, especially in regards to the creative industries. The rural and peripheral areas are left behind.

Relative market share for cultural and creative industries

The relative market shares (RMS) are indicators that show each region's concentration in certain industries compared with the regional position in the national economy. The relative market share for cultural and creative industries can be expressed in the formula (1)

$$RMS = Share^{j}_{culture} / Share^{j}_{all} \quad (1)$$

$Share^{j}_{culture}$ is the share of gross output (or employment) in the cultural and creative industries in region *j* divided by $Share^{j}_{all}$, the share of gross output (or employment) in all industries in region *j.* When RMS equals or is close to 1, this means that the cultural industries in the region have the same position as the average industry in the region. If RMS is greater than 1, it means that the cultural industries account for relative higher shares than other industries in the region. If RMS is less than 1, it means that the cultural industries account for relative lower shares than other industries in the region.

Table 6 shows the top fifteen municipalities that have the highest scores in RMS. All these fifteen municipalities have RMS higher than 1. Copenhagen, even if it has the highest share of production and employment in the cultural and creative industries, it does not take the first place in RMS.

Table 7 Relative market shares (RMS) by top fifteen municipalities

Municipality	RMS by output	Municipality	RMS by employment
Frederiksberg	3.53	Gladsaxe	3.20
Gladsaxe	2.39	Frederiksberg	2.47
Brøndby	1.87	København	2.16
København	1.82	Gentofte	2.09
Gentofte	1.79	Brøndby	1.87
Aarhus	1.71	Hørsholm	1.51
Solrød	1.55	Aarhus	1.35
Dragør	1.51	Dragør	1.33
Hørsholm	1.49	Fredensborg	1.31
Fredensborg	1.48	Odense	1.28
Odense	1.41	Solrød	1.27
Hvidovre	1.27	Lyngby-Taarbæk	1.27
Næstved	1.17	Hvidovre	1.23
Helsingør	1.16	Ishøj	1.16
Lyngby-Taarbæk	1.05	Furesø	1.00

Table 7 selected the top fifteen municipalities in Denmark who show higher RMS than other municipalities. These municipalities, apart from Aarhus (in the eastern Jutland) and Odense (in Funen), are located at Zealand. Most of them are located within the greater Copenhagen area. The lowest RMS municipalities are those located on islands and in peripheral areas.

6 Conclusion

This paper focuses on the economic measurement for culture and creative industries by using the satellite accounting method. The paper gives an overview of literature on culture economy and explains the definition for cultural industry and cultural and creative products. When measuring the economic contribution of certain activities, a precise definition of activities and using the correct accounting methods are necessary procedures before any measurement. This is because, unlike the traditional agriculture and industrial sectors, the culture and creative activities are merged into other general activities in the national account system. These definitional problems in the cultural and creative industries have caused the statistical "left-behind" in relation to other industries.

This paper introduces the principle of tourism satellite accounts in order to construct the regional satellite accounts for culture and creative industries in Denmark. Eleven cultural products and three creative products within the cultural and creative industries are investigated. The advantage of satellite accounts is that the usage of detailed level of product information allows special accounts such as culture and creative industries to be distinguished from the national accounts. This method secures consistency between the satellite accounts and the national accounts. The specific accounts (e.g. tourism and culture) can be compared with other economic sectors. It is also easy to evaluate the economic contribution of the specific accounts.

The principle findings show that the gross output from culture and creative industries is estimated to be 86.9 billion DKK in 2006. The gross value added is 43.4 billion DKK and these industries create 88,124 full-time equivalent jobs in Denmark. From production, gross value added and employment points of view, culture and creative industries contribute with approximately 3% of the national total production, gross value added and employees.

From a regional perspective, two methods are adopted to compare the regional position in regards to the culture and creative industries. The absolute market share for cultural and creative industries is based on the shares of production values and number of employment in each region in comparison with the national total production and employment. The conclusion from the regional comparison shows that cultural and creative activities tend to be more concentrated in the urban areas than in the rural and peripheral areas. Especially regarding the creative industries, the rural and peripheral areas are left behind.

The relative market share method is useful to compare the regional competitive position related to a specific sector or industry. The conclusion from this method shows that municipalities within the greater Copenhagen area have a relatively better competitive position within the culture and creative industry. The urban municipalities, like Aarhus (in the eastern Jutland) and Odense (in Funen) also have a better relative market share than other municipalities.

The economic concentration of culture and creative industries in the urban areas also reflect that the higher educated labor forces tend to live in the urban areas rather than in the peripheral regions.

7 Reference

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8 Appendix

Figure 2 Demand compositions for hotels and restaurants

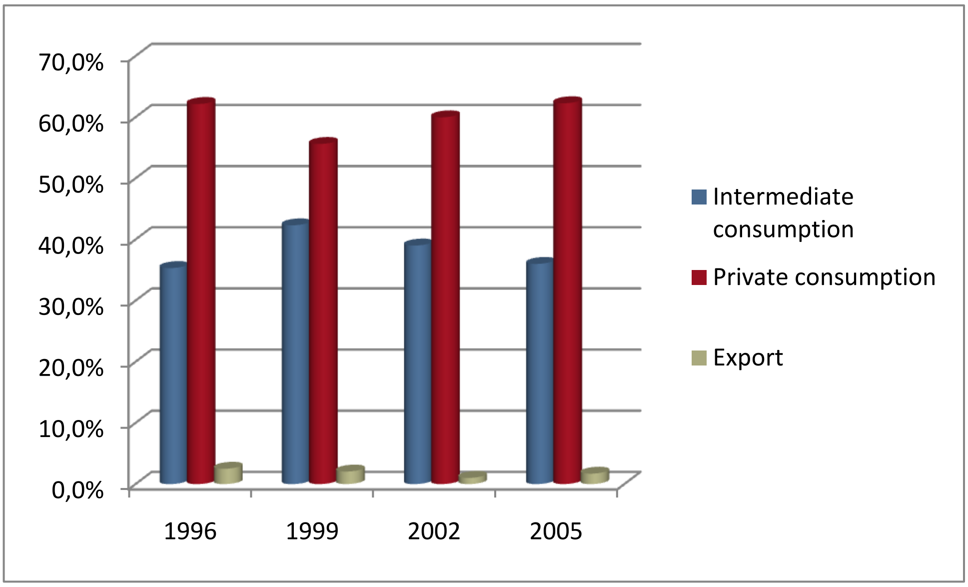

Figure 3 Demand compositions for passenger transport

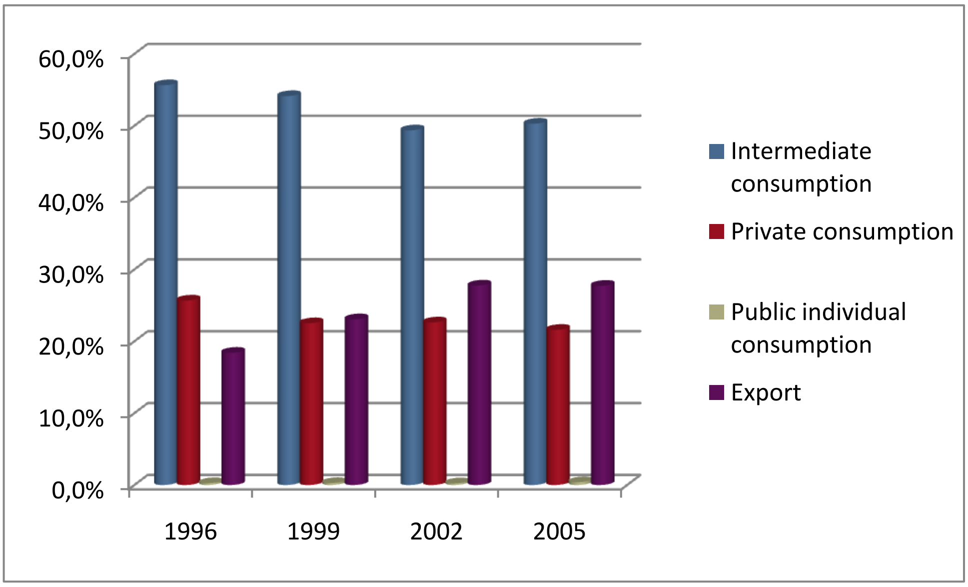

Figure 4 Demand compositions for transport and travel services

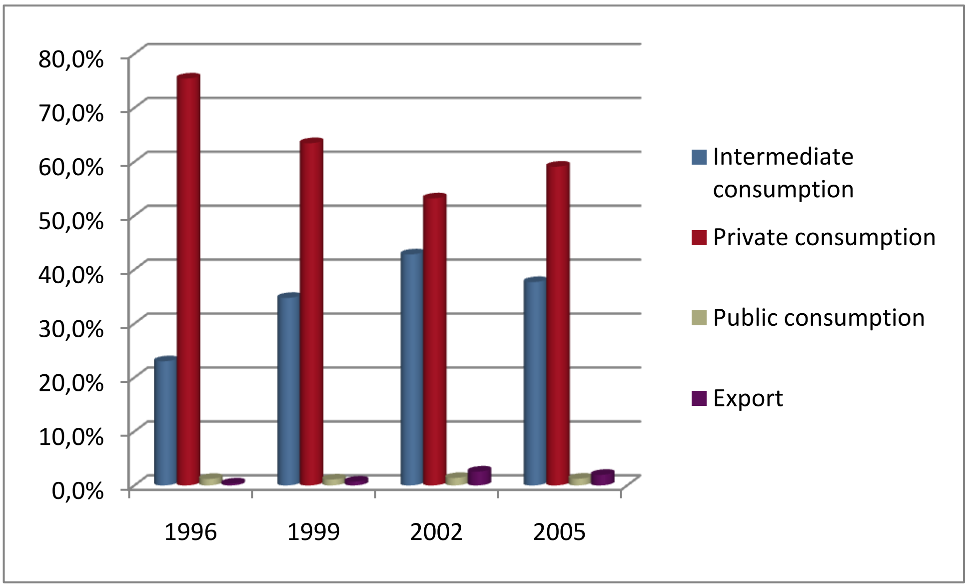

Figure 5 Demand compositions for cultural services