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ECONOMIC IMPACT ASSESSMENT OF AARHUS 2017

FINAL REPORT

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CONTENTS

Executive Summary	7
1 Introduction	9
2 Basis for calculation of the socioeconomic impacts of Aarhus 2017	11
2.1 Inputs to EIA event model	11
3 Socioeconomic impacts of Aarhus being the European Capital of Culture - due to visitors	13
3.1 Turnover generated by Aarhus 2017	13
3.2 Economic impact of visitors by municipality in the Central Denmark Region	14
3.3 Turnover in different industries	16
3.4 Turnover in the municipalities and private sector contributions	17
3.5 Public sector investments, public sector revenues, GVA and turnover generated by visitors	19
4 Fiscal impacts of employment in the Aarhus 2017 secretariat and in the cultural projects	23
4.1 Impacts of jobs in the Aarhus 2017 secretariat	23
5 Fiscal impact generated from employment following increased tourism	27
5.1 Impact of private sector employment	27

6	Municipal economic impact	30
7	Conclusions on the socioeconomic assessment of the Aarhus 2017 cultural projects	34

Executive Summary

Aarhus Municipality, in close collaboration with the 18 other municipalities in the Central Denmark Region, was awarded the title of European Capital of Culture with the ambition to use culture as a catalyst for growth and development on a number of areas. This report assesses the economic impact of the European Capital of Culture Aarhus 2017.

Inputs to the assessment are surveys and statistics on tourism, overnight stays, motivation factors and choice of destination, etc. Data on visitors was provided by rethinkIMFACTS, Kantar Gallup, Epinion, VisitDenmark, VisitAarhus and Danmarks Statistik collected by the secretariat of the Aarhus 2017 Foundation. The assessment is based on a conservative approach in case of uncertainties regarding the impact. The use of empirically based motivation factors ensures that only impacts that can be attributable to Aarhus 2017 are included in the results.

The main findings following Aarhus 2017 are that:

- > 1,403 jobs were created in the private sector in the Central Denmark Region in 2017. In addition, 562 jobs were created during 2013 to 2017 due to employment in the Aarhus 2017 secretariat and in the cultural projects. In total 1,965 jobs were created.
- > Aarhus 2017 generated a turnover in the private sector of 1,185 million DKK. With public sector investments in Aarhus 2017 of 392 million DKK, the cultural projects increased the turnover in the Central Denmark Region by 3.0 times the public contribution.
- > The municipalities in the Central Denmark Region improved the municipal budgets by 285 million DKK compared to municipal financing of 200 million DKK. Hence, for every DKK spent, 1.4 DKK came back due to fiscal effects.
- > Aarhus 2017 generated a gross value added of 603 million DKK in the private sector in the Central Denmark Region in 2017. Hence, the cultural projects increased the gross value added in the private sector by 1.5 times the public contribution.

- > With private contributions to Aarhus 2017 of 111 million DKK, the cultural projects increased the gross value added in the private sector by 5.4 times the private contribution.

To these impacts should be added the branding impact, value of professionalization of tourism and in the cultural institutions due to Aarhus 2017. The value of the branding of Aarhus 2017 has, however, not been assessed. Similarly, the longer-term impact of Aarhus 2017 are not included in this report.

1 Introduction

Aarhus Municipality together with the Central Denmark Regions 18 other municipalities were selected as the European Capital of Culture 2017 (hereafter referred to as Aarhus 2017). A large number of cultural projects took place within the scope of Aarhus 2017. As the co-hosts of the event, the municipalities in the Central Denmark Region financed a considerable share of the events that took place in Aarhus 2017.

Investments in cultural projects lead to higher economic activity due to an increased number of tourists, overnight stays, tickets sold, restaurant dining, employment on projects etc. To this should be added the branding impact of the event on Aarhus and the municipalities in the Central Denmark Region.

Aarhus 2017 had the ambition to investigate whether culture can be a catalyst for employment and economic growth. This makes it highly relevant to assess the economic impacts of Aarhus 2017 in terms of the economic impact of the cultural projects on the municipalities of the Central Denmark Region and on the state.

Data on tourists visiting Aarhus 2017 cultural projects, type of overnight stays, are based on 2017 annual figures whereas the employment in the Aarhus 2017 secretariat and the employment in the cultural projects are based on 2013 to 2017 figures.

1.1.1 Structure of report

This Economic Impact Assessment report of Aarhus 2017 is structured as follows:

Chapter 2 outlines the basis for the calculation of the socioeconomic effects of cultural projects in Aarhus 2017.

The results of the cultural projects during Aarhus 2017 are assessed in Chapter 3, in terms of the generated turnover, gross value added, employment and public sector revenues allocated to different industries, municipalities and different public sector bodies due to visitors to Aarhus 2017.

Chapter 4 assesses the impacts of the direct employment in the Aarhus 2017 secretariat and employment in the cultural projects. There is obviously a direct employment impact, but the employment also generates taxes to the municipalities and the state. In this way, all municipalities will benefit from the higher number of jobs in the Aarhus 2017 secretariat and from employment offered by the cultural projects. These impacts are captured in this chapter.

The increased number of tourists resulting from Aarhus 2017 cultural projects also has an impact on the labour markets since the increased turnover generated by visitors will reduce unemployment. Chapter 5 captures these employment impacts and investigate how the increased employment influence

the municipal fiscal budgets, as these employment impacts on municipal budgets are not captured in Chapter 3.

The return on the public investments is summarised and assessed in Chapter 6. The net municipal fiscal impacts calculated in the previous chapters are compared to the municipal contributions to Aarhus 2017.

Finally, chapter 7 summarises the conclusions of the socioeconomic impacts of Aarhus 2017.

The methodology used to calculate the economic impact of Aarhus 2017 is described in Appendix A whereas Appendix B defines technical terms used in the report.

2 Basis for calculation of the socioeconomic impacts of Aarhus 2017

This chapter provides the basis for calculating the socioeconomic impacts of the visitors attending cultural projects motivated by Aarhus 2017.

The main finding of this chapter is that 730,000 people visited the Central Denmark Region as one-day tourist, and visitors staying overnight spend 944,400 nights motivated by Aarhus 2017.

2.1 Inputs to EIA event model

Inputs to the assessment were based on surveys and statistics on tourism, overnight stays, motivation factors and choice of destination, etc. Data on visitors was provided by rethinkIMPACTS, Kantar Gallup, Epinion, VisitDenmark, VisitAarhus and Danmarks Statistik collected by the Aarhus 2017 secretariat. In the assessment a conservative approach has been adapted in case of uncertainties regarding the effect. The use of empirically based motivation factors ensures that only impacts that can be attributable to Aarhus 2017 are included in the results.

Table 2-1 shows the number of visitors – domestic and from abroad distributed on one-day visitors and visitors staying overnight motivated by Aarhus 2017. These cultural projects have received financial support from the Aarhus 2017 secretariat. In addition, visitors' daily spending broken down on type of overnight accommodation is presented. Visitors staying overnight are furthermore divided into different accommodation categories, e.g. hotel, hostel, summerhouse etc. Based on surveys, the standard amount has been multiplied by the number of visitors in each accommodation category. This gives the turnover generated by the visitors of Aarhus 2017 by accommodation category and in total.

Table 2-1 Inputs to the EIA event model

	Domestic visitors		Visitors from abroad	
	Daily consumption DKK/day/person	# visitors	Daily consumption DKK/day/person	# visitors
		731,385		-
One-day visitors	270	731,385	380	-
Overnight stays by visitors		421,651		522,754
Hotel vacation	1,390	187,861	1,830	110,658
Hotel Business	1,890	66,180	2,200	58,305
Camping	360	24,808	440	58,509
Hostel	1,310	17,415	950	27,994
Holiday home	510	19,700	450	135,016
Holiday resort	690	-	790	-
Family and friends	360	104,207	340	70,209
Airbnb	360	1,479	340	56,791
Sailors	360	-	340	-
Cruise passengers	1,251	-	1,647	5,272

Source: One-day Tourism: Danskernes Transportvaneundersøgelse, DTU (provided by VisitDenmark), Motivation factor, One-day Tourism: Aarhus Tourism Survey, Epinion, Overnight Stays: Statistic Denmark, Motivation Factor, overnight stays: Visit Denmark. The daily consumption rates are data from VisitDenmark.

In 2017, the following information on visitors attending cultural projects motivated by Aarhus 2017 can be extracted:

- > Approximately 730,000 domestic visitors motivated by Aarhus 2017 made one-day visits.
- > Domestic visitors motivated by Aarhus 2017 stayed 422,000 nights.
- > Foreign visitors motivated by Aarhus 2017 stayed 523,000 nights.

3 Socioeconomic impacts of Aarhus being the European Capital of Culture - due to visitors

The results of the cultural projects during Aarhus 2017 as assessed by the EIA event model¹ are impacts on turnover, gross value added, employment and public sector revenues allocated to different industries, municipalities and different public sector bodies. These impacts are assessed due to visitors motivated by 2017.

The main findings of this chapter are that visitors have generated a turnover of 1,159 million DKK and that 1,403 full-time jobs have been created in the Central Denmark Region. In addition the gross value added increased by 603 million DKK in the Central Denmark Region. Public sector revenues increased by 198 million DKK due to foreign visitors.

3.1 Turnover generated by Aarhus 2017

The turnover generated by Aarhus 2017 cultural projects forms the basis for calculating the economic impacts, such as employment impacts, public sector revenue and gross value added using standard factors. These standard factors are based on economic research made by the Danish Business Authority, the Danish Agency for Labour Market and Recruitment and the Department of Regional Development.

Based on the above input, cf. Table 2-1, the turnover generated from one-day visitors and visitors staying overnight are calculated. The turnover calculation is made separately for domestic and foreign visitors, and the turnover generated by visitors measured in million DKK are presented in Table 3-1.

¹ See Appendix A for an explanation of the EIA event model.

Table 3-1 Turnover of domestic and foreign visitors staying overnight and not staying overnight respectively

Million DKK	Domestic	From abroad	Total
Turnover of visitors staying overnight	466	496	962
Turnover of visitors not staying overnight	197	-	197
Total turnover DKK	664	496	1,159

Source: Calculations made in the EIA event model.

In 2017, the following information on turnover generated by visitors attending cultural projects under the auspices of Aarhus 2017 can be extracted:

- > A total turnover of 1,159 million DKK was generated by visitors motivated by Aarhus 2017, of which the turnover from domestic visitor's accounts for 664 million DKK and the turnover from foreign visitors for 496 million DKK. In addition, tickets for 26 million DKK sold to visitors outside the Central Denmark Region should be added to the generated turnover, implying a total, generated turnover of 1,185 million DKK.
- > Visitors staying overnight generated a turnover of 962 million DKK.
- > Approximately 731,000 one-day visitors generated a turnover of 197 million DKK.
- > 55% of the visitors with staying overnight were from abroad and 45% were domestic visitors from outside the Central Denmark Region.
- > The one-day visitors were solely domestic visitors from outside the Central Denmark Region. International one-day tourist from abroad are insignificant and omitted.

3.2 Economic impact of visitors by municipality in the Central Denmark Region

The economic impacts of Aarhus 2017 on the municipalities of the Central Denmark Region, on the Central Denmark Region and at national level are shown in Table 3-2. The impacts are expressed as the creation of employment measured in full-time jobs, revenues accruing to the public sector and the gross value added, where the latter two are measured in million DKK.

Table 3-2 *Economic impacts of visitors in the municipalities, in the Central Denmark Region and at the national level from foreign visitors*

Geographical area	Full-time jobs (number)	Public sector revenue (Million DKK)	gross value added (Million DKK)
National impact from foreign tourists	654.4	198.3	292.5
Central Denmark Region	1,402.7	46.4	602.8
Aarhus	973.3	32.2	418.3
Randers	60.1	2.0	25.8
Viborg	59.2	2.0	25.5
Silkeborg	56.2	1.9	24.1
Herning	54.3	1.8	23.3
Horsens	52.0	1.7	22.4
Holstebro	36.2	1.2	15.6
Skanderborg	18.2	0.6	7.8
Favrskov	14.8	0.5	6.3
Hedensted	14.6	0.5	6.3
Syddjurs	13.1	0.4	5.6
Norddjurs	12.1	0.4	5.2
Ringkøbing-Skjern	9.3	0.3	4.0
Skive	7.6	0.3	3.3
Odder	6.9	0.2	3.0
Ikast-Brande	6.4	0.2	2.7
Struer	3.6	0.1	1.5
Lemvig	3.5	0.1	1.5
Samsø	1.3	0.0	0.5

Source: Calculations made in the EIA event model.

In 2017, the following information on full-time jobs, public sector revenues, and gross-value added generated by visitors motivated by Aarhus 2017 can be extracted:

Full-time jobs:

- > It appears from Table 3-2 that 1,403 full-time jobs in the Central Denmark Region were created in 2107 due to the increased turnover from visitors motivated by Aarhus 2017.
- > Aarhus Municipality created 973 full-time jobs corresponding to 69% of all jobs created in the Central Denmark Region.
- > The surrounding municipalities of Horsens, Skanderborg, Silkeborg and Randers each created between 18 and 60 full-time jobs. The further away a municipality is from Aarhus, the less jobs were created.

Public sector revenue:

- > Looking at the public sector revenue impacts of Aarhus 2017, tax revenues accruing to public authorities increased by 198 million DKK in 2017 as a result of foreign visitors.
- > The Danish state profited the most, ending up with an increase in revenues of 134 million DKK due to foreign visitors. The municipalities in the Central Denmark Region collected 46 million DKK in municipal taxes due to foreign visitors and Danish visitors from outside the Central Denmark Region. The total revenue accruing to the state is around three times as high as the municipal revenues in the Central Denmark Region. This is because the state collects the majority of taxes, including personal income tax, VAT and other taxes.
- > Again, the Municipality of Aarhus managed to increase tax revenues most, by 32.0 million DKK or 69% of the total increase in municipal tax revenues.
- > The municipalities of Horsens, Skanderborg, Silkeborg and Randers saw increases in municipal tax revenues of between 0.6 and 2 million DKK.

Gross value added:

The gross value added describes the part of the turnover that remains within the private companies and within the workforce. It is the turnover generated less costs of inputs and raw materials.

- > The gross value added generated is 603 million DKK in the Central Denmark Region. The same pattern is seen for the gross value added as for the job creation and public sector revenues.
- > Aarhus Municipality generated 418 million DKK in gross value added out of 603 million DKK corresponding to approximately 69% of the total gross value added generated in the Central Denmark Region. Horsens, Skanderborg, Silkeborg and Randers municipalities generated between 7.8 million DKK and 25.8 million DKK.
- > It appears from Table 3-2 that the impacts in the Central Denmark Region measured in full-time jobs and the gross value added are more than twice as high as the impacts at the national level. The model assumes that visitors from other Danish regions reduce spending in their home region when they increase spending in the Central Denmark Region. As such, the impacts on municipalities outside the Central Denmark Region are negative.

3.3 Turnover in different industries

The increased turnover created by visitors motivated by Aarhus 2017, as presented in Table 3-1, can be distributed relatively precise on different industries by means of standard distribution factors. These standard distribution

factors have been generated based on analyses of tourist spending. The resulting impacts in the different industries are presented in Table 3-3.

Table 3-3 Increase in turnover in different industries due to visitors

Type of activity	Turnover (million DKK)
Accommodation	464
Restaurants	325
Other goods and services	197
Shopping	81
Amusement	46
Grocery	35
Local transport	12
Total	1,159

Source: Calculations made in the EIA event model.

As seen from Table 3-1 and Table 3-3, Aarhus 2017 increased the turnover by 1,159 million DKK. The turnover is distributed between the different industries as follows:

- > Not surprisingly, the largest increase in turnover is seen in accommodation and restaurant dining, corresponding to 464 million DKK and 325 million DKK respectively, or 40% and 28% of the total turnover.
- > Other goods and services consist of suppliers to the above-mentioned industries. This sector increased its turnover by 197 million DKK, which corresponds to 17% of the total turnover generated.
- > Shopping, Amusement, Grocery and Local transport combined account for an increase in the turnover of 174 million DKK or 15% of total turnover generated.

3.4 Turnover in the municipalities and private sector contributions

Table 3-4 shows the private sector contributions to Aarhus 2017 and the private sector contributions to cultural projects within Aarhus 2017. The private sector contributions were made both to the Aarhus 2017 secretariat and to specific cultural projects.

Table 3-4 Private sector contributions to the Aarhus 2017 secretariat and the cultural projects

Type of activity	(million DKK)
Private sector contribution to the Aarhus 2017 secretariat	86.3
Private sector contribution to the cultural projects	25.1

Source: Aarhus 2017.

- > The private sector contributed to the Aarhus 2017 secretariat with 86 million DKK and with 25 million DKK to the cultural projects. In total contributed the private sector with 111 million DKK to Aarhus 2017.

Table 3-5 illustrate an increased turnover of 1,159 million DKK as presented in Table 3-1 distributed on the municipalities in the Central Denmark Region.

Table 3-5 Turnover in municipalities due to visitors

Type of activity	Turnover (million DKK)
Turnover - private sector	1,159.3
Aarhus	804.4
Randers	49.7
Viborg	49.0
Silkeborg	46.4
Herning	44.9
Horsens	43.0
Holstebro	29.9
Skanderborg	15.0
Favrskov	12.2
Hedensted	12.1
Syddjurs	10.9
Norddjurs	10.0
Ringkøbing-Skjern	7.7
Skive	6.3
Odder	5.7
Ikast-Brande	5.3
Struer	2.9
Lemvig	2.9
Samsø	1.1
Total	1,159.3

Source: The turnover figures are calculations made in the EIA event model.

The following information on the turnover generated in the municipalities by visitors motivated by Aarhus 2017 and the private sector contributions can be extracted:

- > The total private sector turnover is 1,159 million DKK compared to a private investment of 86 million DKK to the Aarhus 2017 secretariat and 25 million DKK to the cultural projects.
- > It appears that the private sector in the Municipality of Aarhus accounts for about two thirds of the total private sector turnover.

Furthermore, the private sector will benefit from positive branding. These impacts are not estimated in this report since they are outside the scope of this project.

3.5 Public sector investments, public sector revenues, gross value added and turnover generated by visitors

Table 3-6 presents the investments made by the municipalities in the Central Denmark Region, by the Central Denmark Region and the Danish state together with the net public sector revenues, the gross value added and the turnover generated by visitors motivated by Aarhus 2017.

Table 3-6 Public sector investments, public sector revenues, gross value added and turnover generated due to visitors

Million DKK	Investments or public contributions	Public sector revenue	gross value added generated	Turnover generated
Aarhus Municipality ¹⁾	140	32	418	804
The 18 municipalities in the Central Denmark Region ¹⁾	61	14	185	355
Central Denmark Region	59	0	0	0
The Central Denmark Region, in total	260	46	603	1,159
The Danish State ²⁾	132	134	-	0
National impact	392	198	292	0

Source: Calculations made in the EIA event model. Note 1) Investments or public contributions is the sum of cash contributions and contributions in-kind in terms manpower from the municipalities to Aarhus 2017. Note 2) State contribution and contribution made by Aarhus University.

The following information on investments, public sector revenues, gross value added and turnover generated by visitors attending cultural projects part of Aarhus 2017 can be extracted:

Investments:

- > Public bodies in Denmark invested 392 million DKK in Aarhus 2017.

- > Aarhus Municipality invested 140 million DKK corresponding to 33% of the total public investments of 392 million DKK.
- > The municipalities in the Central Denmark Region (excluding Aarhus Municipality) invested 61 million DKK whereas the Central Denmark Region invested 59 million DKK or 16% and 15% respectively of the total investment.
- > The Danish state invested 132 million DKK corresponding to 34% of the total public investments of 392 million DKK.
- > The EU contributed with 11 million DKK.

Public sector revenues:

- > Aarhus Municipality collected 32 million DKK in additional municipal taxes from the turnover generated by all visitors.
- > The 18 other municipalities in the Central Denmark Region collected 14 million DKK in additional municipal taxes from the turnover generated by all visitors.
- > The Danish state received 134 million DKK in additional state tax from the turnover generated by foreign visitors.

Gross value added:

- > Aarhus 2017 generated a gross value added in the private sector of 418 million DKK in the Aarhus Municipality and a gross value added of 185 million DKK in the other municipalities in the Central Denmark Region. In total, a gross value added of 603 million DKK was generated in the Central Denmark Region.
- > At the national level Aarhus 2017 generated a gross value added of 292 million DKK to the private sector.
- > With private contributions to Aarhus 2017 of 111 million DKK, the cultural projects increased the gross value added by 5.4 times the private contribution.
- > With public sector investments in Aarhus 2017 of 392 million DKK, the cultural projects increased the gross value added by 1.5 times the public contribution.

Turnover:

- > Aarhus 2017 generated a turnover in the private sector of 804 million DKK in Aarhus Municipality and 355 million DKK in the 18 other municipalities of the Central Denmark Region.

- > The combined impact is that Aarhus 2017 generated a turnover of 1,159 million DKK. In addition, 26 million from tickets sold should be added to the turnover implying a total generated turnover of 1,185 million DKK. With public sector investments in Aarhus 2017 of 392 million DKK, the cultural projects increased the turnover in the Central Denmark Region by 3.0 times the public contribution.

Table 3-6 shows that the municipalities get between one fourth and one fifth of their investments back in the short term as revenue while the Danish State can expect to receive slightly more than the amount contributed.

In Aarhus Municipality and the Central Denmark Region, the gross value added in the private sector exceeds the public investment. The municipalities have an estimated gross value added that is approximately more than twice the investment. For the country as a whole, the picture is different, since visitors from other regions in Denmark spend less money in their home region. A positive impact at the national level will thus depend on the ability to attract visitors from abroad.

In conclusion, it is found that the private sector gets a financial boost that exceeds their investment and that the gross value added in the Central Denmark Region accruing to private companies and the workforce is significantly higher than the private sector contribution. A significant share of the public sector investment is paid back as revenues in the short term. Assessing the long-term impacts for both the public and the private sector is outside the scope of this project.

4 Fiscal impacts of employment in the Aarhus 2017 secretariat and in the cultural projects

This chapter assesses the fiscal and employment impacts of the direct employment in the Aarhus 2017 secretariat and the employment in the cultural projects. There is obviously a direct employment impact, but the employment also generates municipal and state taxes as previously unemployed people get back into work. Hence, all municipalities will benefit from the increase in the number of jobs in the Aarhus 2017 secretariat and the jobs created by the cultural projects. Due to the preparation of Aarhus 2017 staff has been working in the Aarhus 2017 secretariat and on the cultural projects since 2013. Hence the impacts captured in this chapter are for the period 2013 to 2017.

562 full-time staff have been working in the Aarhus 2017 secretariat and in the cultural projects. The net fiscal effect of these jobs have generated net fiscal effects of 107 million DKK to the municipalities in the Central Denmark Region and 74 million DKK to the Danish state.

4.1 Impacts of jobs in the Aarhus 2017 secretariat

The impact on employment is measured by changes in full-time jobs and as net changes in municipal fiscal impacts following reduced pay-outs of unemployment benefits and a changed tax base, etc.

The jobs in the Aarhus 2017 secretariat and in the cultural projects have an impact on various parameters both at the national and the municipal level. Table 4-1 shows the impacts of the Aarhus 2017 secretariat and the cultural projects.

Table 4-1 *Impacts due to jobs in the Aarhus 2017 secretariat and the cultural projects during the period from 2013 to 2017*

Million DKK	The Aarhus 2017 secretariat	Cultural projects	Total
Full-time jobs (Number)	67	495	562
Salaries	51.1	249.2	300.3
Municipalities' net impact	17.3	89.5	106.8
State net impact	12.0	62.0	74.0

Source: The number of employees and salaries are provided by the Aarhus 2017 secretariat and the calculations of the municipalities and state net impacts are made in the EIA event model.

The following information on full-time jobs and public sector revenues generated by jobs in the Aarhus 2017 secretariat and in the cultural projects of Aarhus 2017 can be extracted:

It appears from Table 4-1 that Aarhus 2017 had a significant impact on both employment and the fiscal revenues in the public sector.

- > 67 people were employed by the Aarhus 2017 secretariat and 495 people were employed by the various cultural projects during the period of 2013 to 2017. In total, 562 people were employed as a result of Aarhus 2017 during 2013 to 2017.
- > The Aarhus 2017 secretariat spent 51 million DKK on wages whereas the various cultural projects spent 249 million DKK on wages over the five year period of 2013 to 2017.

It appears that the jobs in the Aarhus 2017 secretariat and in the cultural projects had positive fiscal impacts on both the state and the municipalities. New jobs reduce the number of people receiving unemployment benefits.

- > The municipalities of the Central Denmark Region experienced a net saving of 90 million DKK due to jobs created in the cultural projects and of 17.3 million DKK due to jobs created in the Aarhus 2017 secretariat.
- > The municipalities received a positive net revenue of 107 million DKK due to Aarhus 2017, whereas the Danish state received a net revenue of 74 million DKK.

However, this positive impact does not take into account the financing of the Aarhus 2017 secretariat or the financing of the projects.

Below, Table 4-2 shows the net fiscal impacts in each municipality of the Central Denmark Region. The total municipal net fiscal impacts of 17.3 million DKK following jobs in the Aarhus 2017 secretariat and the 89.5 million DKK following jobs in the various projects are distributed on the various municipalities in the Central Denmark Region.

Table 4-2 Net fiscal impacts on the municipalities due to the jobs in the Aarhus 2017 secretariat and in the cultural projects - DKK

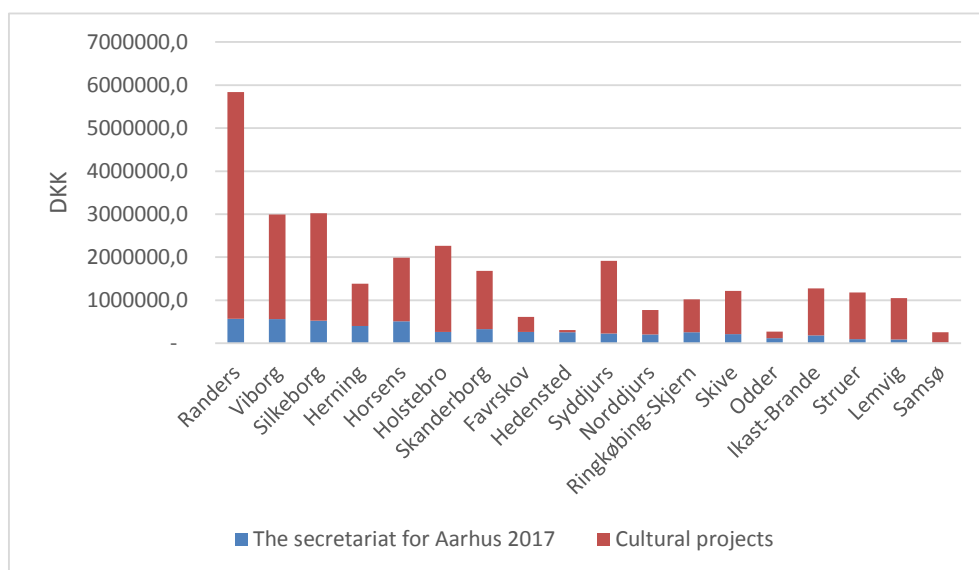
Municipality	The Aarhus 2017 secretariat	Projects
Aarhus	12,189,517	58,863,193
Randers	567,540	6,736,674
Viborg	559,643	3,108,245
Silkeborg	529,132	3,189,542
Herning	400,408	1,263,286
Horsens	515,286	1,883,789
Holstebro	263,743	2,555,629
Skanderborg	330,355	1,725,689
Favrskov	261,329	448,930
Hedensted	253,727	66,910
Syddjurs	229,299	2,157,014
Norrdjurs	207,019	726,481
Ringkøbing-Skjern	258,220	980,311
Skive	210,741	1,292,103
Odder	122,624	194,241
Ikast-Brande	186,913	1,393,752
Struer	96,367	1,389,269
Lemvig	91,693	1,223,409
Samsø	20,295	300,672
I alt	17,293,851	89,499,139

Source: Calculations made in the EIA event model.

It appears from Table 4-2 that the largest absolute net fiscal impact occurs in Aarhus Municipality, still the other municipalities also experience a positive net fiscal impact.

Figure 4-1 below shows the combined municipal net impact of the Aarhus 2017 secretariat and the cultural projects in each municipality of the Central Denmark Region.

Figure 4-1 Total impact in each municipality in the Central Denmark Region exclusive of Aarhus Municipality



Source: Calculations made in the EIA event model.

5 Fiscal impact generated from employment following increased tourism

Employment is generated in the private sector as a result of tourist spending. Therefore, the generated private sector impacts measured in full-time jobs have been included in the labour market module of the EIA event model. This chapter analyses the fiscal impact on the public sector of increased employment generated in the private sector as a result of visitors to Aarhus 2017.

The main findings of this chapter are that the visitors to Aarhus 2017 generated 1,403 full-time jobs in the private sector in the Central Denmark Region, which generated 208 million DKK to the public sector in the form of increased tax revenues.

5.1 Impact of private sector employment

As mentioned in chapter 4, the employment impact is measured by looking at the changes in full-time jobs and at the net fiscal revenue to the public budgets due to changes in payments of unemployment benefits, the tax base and by looking at the co-financing of the Aarhus 2017 budget. In chapter 4, these calculations were based exclusively on the jobs created in the Aarhus 2017 secretariat and on the cultural projects.

When employment in the private sector increases, it is assumed that unemployment decreases, either directly or indirectly. This makes it relevant to estimate the impact of job growth on unemployment benefits, as well as the tax impacts for the municipalities and the state, etc.

Table 5-1 shows the estimated impact on the public sector net revenues from increased private sector employment brought about by the visitors to Aarhus 2017 (tourism impacts on public budgets).

Table 5-1 Estimated impact on the public sector net revenues from increased private sector employment caused by the visitors to Aarhus 2017

	Million DKK
Full-time employments	1,403
Municipal saving (unemployment benefits)	309.8
Reduced municipal revenue (refund from state and municipal tax on unemployment benefits)	-178,0
Municipal net change	131.7
State savings	123.9
Reduced state revenue	-47.1
State net change	76.8
Total change in public sector cash flow	208.5

Source: Calculations made in the EIA event model.

The following information on full-time jobs and public sector revenues generated by jobs in the private sector ("tourism impacts") as a result of the cultural projects of Aarhus 2017 can be extracted from Table 5-1:

Employment:

- > 1,403 jobs were created in the Central Denmark Region as a result of visitors to the cultural projects in Aarhus 2017 (cf. Table 3-2).

Municipalities in the Central Denmark Region:

- > Due to the 1,403 jobs created, the municipalities in the Central Denmark Region saved 310 million DKK in avoided annual unemployment payments.
- > The municipalities in the Central Denmark Region face a drop in municipal revenues due to the 1,403 jobs created, which result in less reimbursement from the Danish state and due to the reduced taxes of unemployed people. This corresponds to a reduction in municipal revenues of 178 million DKK.
- > The municipalities in the Central Denmark Region experienced increased municipal tax revenues of 132 million DKK due to the 1,403 jobs created.

The Danish state:

- > Due to the 1,403 jobs created in the Central Denmark Region, the Danish state saved 124 million DKK in avoided annual employment payments.
- > The Danish state experienced a drop in revenues due to reduced taxes of unemployed people. This amounts to a reduction in state revenues of 47 million DKK.
- > The state can look forward to an increase in state taxes of 77 million DKK due to the 1,403 jobs created.

The results show that private sector employment generated by Aarhus 2017 has a positive impact on public sector cash flows.

Table 5-2 shows the net fiscal impact on the municipalities from private sector employment following visitors' spending.

Table 5-2 *Municipal net fiscal impacts on the municipalities (Million DKK)*

Municipality	Million DKK
Aarhus	91.4
Randers	5.6
Viborg	5.6
Silkeborg	5.3
Herning	5.1
Horsens	4.9
Holstebro	3.4
Skanderborg	1.7
Favrskov	1.4
Hedensted	1.4
Syddjurs	1.2
Norddjurs	1.1
Ringkøbing-Skjern	0.9
Skive	0.7
Odder	0.6
Ikast-Brande	0.6
Struer	0.3
Lemvig	0.3
Samsø	0.1
I alt	131.7

Source: Calculations made in the EIA event model.

It appears from Table 5-2 that the private sector employment is consistently positive to municipal fiscal budgets.

6 Municipal economic impact

There are different possible approaches to estimating the public sector economic impacts. In this report, we compare the investments made by the municipalities to the employment impacts on the municipal fiscal budgets of both employment in the Aarhus 2017 secretariat, the cultural projects and the private sector (due to tourism impacts). These impacts are not the total economic impact, but put together they give an indication of the implication of the net investments by the municipalities in Aarhus 2017. This net investment leads to other impacts such as gross value added in the private sector and upgrading of competencies of the workforce, etc.

The main findings of this chapter are that municipalities in the Central Denmark Region have contributed with 200 million DKK to Aarhus 2017. The municipalities in the Central Denmark Region have increased their revenues by 285 million DKK due to Aarhus 2017. The combined economic impacts for all municipalities in the Central Denmark Region is 142%.

Table 6-1 shows the net fiscal municipal impact following the cultural projects in Aarhus 2017. The municipal net fiscal impact is the combined impacts of:

- > Municipal net fiscal impact of employment in Aarhus 2017 secretariat.
- > Municipal net fiscal impact of employment on the cultural projects.
- > Municipal net fiscal impact on private sector employment (tourism impact).

Table 6-1 *Municipal net fiscal impact of employment changes – million DKK*

Municipality	Municipal net fiscal impact due to employment in the Aarhus 2017 secretariat	Municipal net fiscal impact due to employment in the cultural projects	Municipal net fiscal impact due to private sector employment from visitors	Municipal net fiscal impact of employment changes
Aarhus	11.37	58.86	91.40	161.64
Randers	1.30	6.74	5.65	13.69
Viborg	0.60	3.11	5.56	9.27
Silkeborg	0.62	3.19	5.27	9.08
Herning	0.24	1.26	5.10	6.61
Horsens	0.36	1.88	4.89	7.13
Holstebro	0.49	2.56	3.40	6.45
Skanderborg	0.33	1.73	1.71	3.77
Favrskov	0.09	0.45	1.39	1.92
Hedensted	0.01	0.07	1.37	1.45
Syddjurs	0.42	2.16	1.23	3.81
Norddjurs	0.14	0.73	1.14	2.00
Ringkøbing-Skjern	0.19	0.98	0.87	2.04
Skive	0.25	1.29	0.72	2.26
Odder	0.04	0.19	0.65	0.88
Ikast-Brande	0.27	1.39	0.60	2.26
Struer	0.27	1.39	0.34	1.99
Lemvig	0.24	1.22	0.32	1.78
Samsø	0.06	0.30	0.12	0.48
Total	17.29	89.50	131.72	238.52

Source: Calculations made in the EIA event model.

The following information on public sector revenues or net fiscal impact due to employment in the Aarhus 2017 secretariat, due to employment in the cultural projects and due the private sector employment from visitors under the auspices of Aarhus 2017 can be extracted from Table 6-1:

- > The total net positive municipal revenues due to the activities generated by Aarhus 2017 amount to 239 million DKK. These are due from employment in the Aarhus 2017 secretariat with 17 million DKK, 89 million DKK due from employment in the cultural projects and 132 million DKK due to private sector employment from visitors.
- > Aarhus Municipality receives the largest net municipal revenue of 162 million DKK.

The net municipal fiscal impact, the municipal contributions to Aarhus 2017 and the return on the municipal investments are presented in Table 6-2. However,

negative impacts in municipalities outside the Central Denmark Region are omitted.

Table 6-2 Net municipal fiscal impact, municipal contributions and economic impact (Million DKK)

Municipality	Net fiscal impact of employment changes	Net fiscal impact due to increased turnover following tourist spending	Total net fiscal impact	Municipal contribution	Economic impact
Aarhus	161.64	32.18	193.81	139.99	138%
Randers	13.69	1.99	15.68	7.90	199%
Viborg	9.27	1.96	11.23	7.95	141%
Silkeborg	9.08	1.86	10.94	7.99	137%
Herning	6.61	1.80	8.40	6.50	129%
Horsens	7.13	1.72	8.85	7.28	122%
Holstebro	6.45	1.20	7.65	4.88	157%
Skanderborg	3.77	0.60	4.37	2.88	152%
Favrskov	1.92	0.49	2.41	2.32	104%
Hedensted	1.45	0.48	1.93	2.18	89%
Syddjurs	3.81	0.43	4.24	2.00	212%
Norddjurs	2.00	0.40	2.40	1.83	131%
Ringkøbing-Skjern	2.04	0.31	2.35	1.70	138%
Skive	2.26	0.25	2.51	1.36	185%
Odder	0.88	0.23	1.11	1.12	98%
Ikast-Brande	2.26	0.21	2.48	1.14	218%
Struer	1.99	0.12	2.11	0.63	333%
Lemvig	1.78	0.11	1.90	0.58	327%
Samsø	0.48	0.04	0.52	0.18	283%
I alt	238.52	46.37	284.89	200.43	142%

Source: Municipal contributions are provided by the Aarhus 2017 secretariat and the calculations are made in the EIA event model.

The following information on municipal net fiscal impacts, municipal contributions and economic impacts due to Aarhus 2017 can be extracted from Table 6-2:

- > The municipalities in the Central Denmark Region have increased their revenues by 285 million DKK due to Aarhus 2017.
- > The municipalities in the Central Denmark Region have contributed with 200 million DKK to Aarhus 2017.

- > The combined economic impacts for all municipalities in the Central Denmark Region is 142%.
- > There are significant differences in the return on the municipal contributions across the municipalities.
- > The positive net impact from increased employment is due to considerable co-financing from the Danish state, the EU and the private sector.
- > There is a positive impact on the municipal fiscal budgets even without taking private sector gross value added, upgrading of competencies of workforce, etc. into account.
- > As seen in Table 3-5 in chapter 3.4, the private sector receives a significant gross value added from tourist spending. It is positive for the municipalities that Aarhus 2017 was co-financed by external sources. It is also positive for the private sector that Aarhus 2017 leads to a significant additional turnover from tourist spending.

7 Conclusions on the socioeconomic assessment of the Aarhus 2017 cultural projects

The main socioeconomic findings of Aarhus 2017 can be summarised as follows:

- > Approximately 730,000 domestic visitors motivated by Aarhus 2017 made one-day visits.
- > Domestic visitors motivated by Aarhus 2017 stayed 422,000 nights.
- > Foreign visitors motivated by Aarhus 2017 stayed 523,000 nights
- > Aarhus 2017 was financed by 200 million DKK from the municipalities in the Central Denmark Region, of which Aarhus Municipality financed 140 million DKK. In addition, the Central Denmark Region contributed with 59 million DKK. The state has contributed with 132 million DKK. In addition, the EU contributed with 11 million DKK. In total, 403 million DKK were allocated by Danish public authorities and the EU to Aarhus 2017. Private contributions to the Aarhus 2017 secretariat amount to 86 million DKK and 25 million DKK to the cultural projects. The total costs of Aarhus 2017 amount to 514 million DKK.
- > Aarhus 2017 generated 1,965 full-time jobs, of which 67 were employed in the Aarhus 2017 secretariat and 495 in the cultural projects. The full-time jobs were created over a five year period. The rest, 1,403 jobs, were created in the private sector in 2017.
- > Aarhus 2017 generated a gross value added of 418 million DKK in the private sector within Aarhus Municipality and 185 million DKK within the other municipalities in the Central Denmark Region. In total, a gross value added of 603 million DKK was generated in the private sector in the Central Denmark Region by Aarhus 2017.
- > Aarhus 2017 generated a gross value added of 292 million DKK in the private sector in Denmark from foreign visitors.
- > With private contributions to Aarhus 2017 of 111 million DKK, the cultural projects increased the gross value added by 5.4 times the private contribution.
- > With public sector investments in Aarhus 2017 of 392 million DKK, the cultural projects increased the gross value added in Central Denmark Region in the private sector by 1.5 times the public contribution.
- > Aarhus 2017 generated a turnover in the private sector of 1,159 million DKK of which 804 million DKK were generated in Aarhus Municipality and 355 million DKK in the 18 other municipalities.

- > In addition, tickets for 26 million DKK sold to visitors outside the Central Denmark Region should be added to the generated turnover, implying a total, generated turnover of 1,185 million DKK. With public sector investments in Aarhus 2017 of 392 million DKK, the cultural projects increased the turnover in the Central Denmark Region by 3.0 times the public contribution.
- > The municipalities in the Central Denmark Region improved the municipal budgets by 285 million DKK compared to municipal financing of 201 million DKK. Hence, for every DKK spent, 1.4 DKK came back due to fiscal effects.

This report reveals that the short-term economic return on attracting guests are positive and visitors have a significant impact on the economy and the employment in Aarhus Municipality and in the municipalities in the Central Denmark Region. In the form of revenues, the Danish state receives an even larger share of its investment as the state collects the majority of taxes.

This analysis only looks at the economic impacts that are based on well-documented conservative assumptions and empirical observations, but there will be other positive impacts which are not accounted for in this analysis.

Among these impacts is a temporary, partly privately financed increase in employment and long-term tourism impacts, professionalization of tourism and cultural institutions.

Appendix A Methodology

The economic impact assessment of Aarhus 2017 is based on an event model, which is a modified version of the LINE model² - a well-known and widely used model for impact assessment of sports, cultural and business events in Denmark.³ However, the most recent version of the LINE model does not estimate the impacts in the municipalities in the region, nor does it estimate the fiscal impact on the state of the increased activity level. For this reason, an Economic Impact Assessment event model (Henceforth referred to as the EIA event model) was developed which takes account of the regional impacts, the fiscal impact on the state and labour market implications of employment impacts generated by both the Aarhus 2017 secretariat and by the cultural projects.

The first part of the model estimates the direct short-term economic impact on the turnover generated by visitor consumption as a result of the different types of activities. The model accounts for the origin of guests, and turnover by municipality, region and the country as a whole.

The model is a "zero scenario" model. This means that it estimates the difference between applying Aarhus 2017 and doing nothing.

A.1 Limitations

A weakness of the model is that indirect impacts are not estimated. As such, the model is conservative. Other conservative assumptions of the model include:

- > The model does not account for consumption of citizens within the hosting region. This means that the model does not account for increased consumption of citizens of the Central Denmark Region within the region as a consequence of Aarhus 2017.
- > The model does not assess long-term branding impacts.
- > The model does not assess long-term employment impacts.

A.2 Inputs and structure of the EIA event model

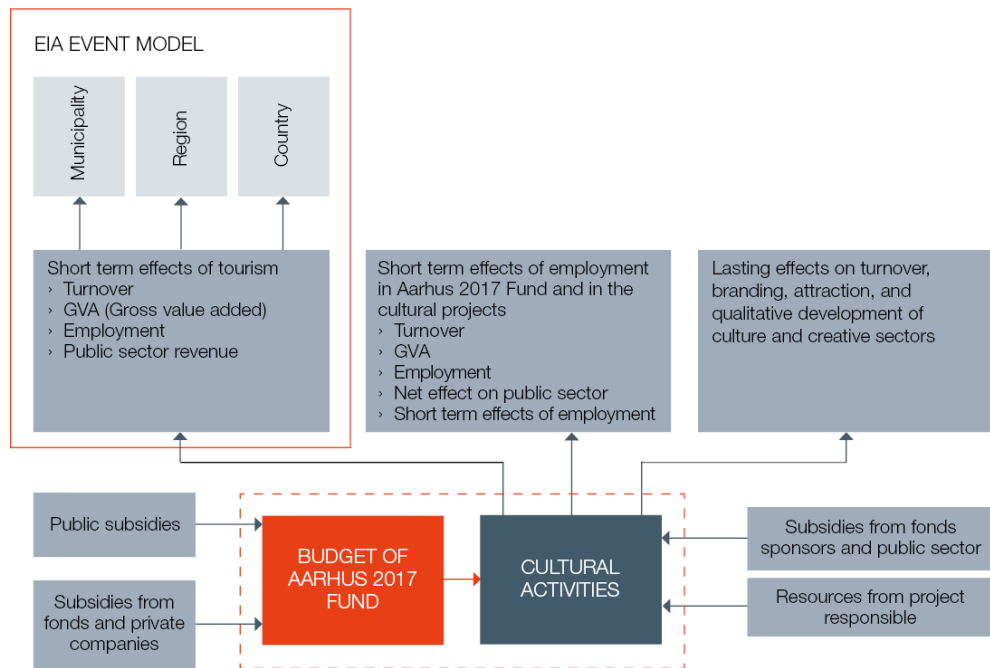
The inputs to the model are based on surveys and tourism data collected by the Aarhus 2017 secretariat, including counting of tourists and surveys on Aarhus 2017 to identify the motivation of tourists for visiting.

Figure A-1 shows the structure of the financing and economic impact impact of Aarhus 2017.

² The LINE model has been developed by Anvendt Kommunal Forskning and the Centre for Tourism and Culture at Copenhagen Business School.

³ See "Effektmåling af Sports-, kultur- og erhvervsbegivenheder, September 2007 by Wonderful Copenhagen, Sport Event Danmark og VisitDenmark, pp. 2-3.

Figure A-1 Financial and economic impacts of Aarhus 2017



COWI has developed and included a labour market model in the EIA event model that can analyse the financial and economic impacts of employment in the Aarhus 2017 secretariat and the Aarhus 2017 cultural projects.

Figure A-1 shows how the model is structured in terms of the financial and economic aspects of the project.

Besides the impacts estimated by the EIA event model, Aarhus 2017 also has to a number of impacts that are not captured by the EIA event model calculations. These impacts can be divided into six areas as follows:

- 1 Activities
- 2 Tourism
- 3 Branding and attraction
- 4 Innovation possibilities
- 5 Competencies
- 6 Identity.

The impacts of each area are described below.

> **Re 1: Activities**

- > More activity in the arts and cultural sectors gives a boost to museums and cultural institutions

- > More cultural activities for the citizens
- > Aarhus 2017 initiatives that are commercially viable generate a permanent, positive impact on activity
- > **Re 2: Tourism**
 - > Increased number of visitors from 2018 onwards due to lasting branding impacts and permanent initiatives
 - > Economic impact of internal visitors within the Central Denmark Region
- > **Re 3: Branding and attraction**
 - > Both short-term and lasting branding impacts for the Municipality of Aarhus, the Central Denmark Region and sponsors
 - > Better opportunities to attract private companies to the region and encourage them to stay
 - > Better ability to attract and maintain a skilled labour force
 - > Better ability to attract students
 - > Supplement to other branding strategies, such as climate strategy CO2030 and global capital of wind power.
- > **RE 4: Innovation possibilities**
 - > Possible integration of cultural, business and educational activities
 - > Strengthened creativity and innovation due to rethink approach.
- > **Re 5: Competencies**
 - > Improved competencies of organisers and participants
 - > Improved possibilities of attracting other events
 - > Professionalization of cultural institutions in the Central Denmark Region.
- > **Re 6: Identity**
 - > Value of cultural activities across the Central Denmark Region
 - > One united region
 - > Social inclusion.

As mentioned above, these impacts are not analysed in this report, but they can be the primary reasons behind the investment. However, the short-term economic impacts are very relevant to assess as this would make it possible to assess the net investment in the project and compare it to the above-mentioned impacts.

If the only scope is the financial results for the municipalities, it is interesting to shed light on the degree to which the investments made by the municipalities are covered by increased tax revenue and reduced transfer payments of the municipalities.

As it appears from Figure A-1, the EIA event model provides the first part of the answer. The model also indicates to what degree other public bodies have their investments covered. Furthermore, the model estimates the turnover, the gross value added⁴ and employment in the economy as a whole.

Gross value added is an economic term that describes the part of the turnover that remains within the private companies and within the workforce. In other words, it is the turnover generated less costs of inputs and raw materials.

The model has well-developed mechanisms that can describe the ratios between turnover, gross value added and employment, and the allocation between Aarhus Municipality, other municipalities in the region and the state. Even though the model cannot be used to assess other economic impacts directly, many of the mechanisms can be applied to other economic impacts.

⁴ Gross value added is a productivity metric that measures the contribution to an economy, producer, sector or region. Gross value added provides a DKK value for the amount of goods and services that have been produced, less the cost of all inputs and raw materials that are directly attributable to that production.

Appendix B Technical terms

gross value added	The gross value added describes the part of the turnover that remains within the private companies and within the workforce. Gross value added provides a DKK value for the amount of goods and services that have been produced, less the cost of all inputs and raw materials that are directly attributable to that production.
Net fiscal impact	Net revenues to a public authority from taxes etc.
Public sector revenues	Tax revenues received by public authorities (State and the municipalities)
Turnover	A measure of the activity generated