Subsidy Dependence and the Cultural Value / Subsidy Ratio of Dutch Performing Arts Venues

Master Thesis – Cultural Economics and Entrepreneurship

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Preface

In September 2013, I started the master Cultural Economics and Entrepreneurship. Since the start of this master thesis, everything has been well organized. I evolved my academic writing and research skills during this long-term project. Alongside new skills, I have also learned the importance of working in a conscientious way, and setting priorities.

I could not have written this master thesis without the help of several important people. Therefore, I would like to thank C. Langeveld and the Dutch association of theatre and concert hall executives for providing me the data of the Theatre Analysis System. In addition, I would like to thank F. Vermeylen as second reader. Special thanks go to C. Langeveld for continuously providing me ideas, support, counselling, and feedback. Lastly, I would like to thank my family and friends for their support during this entire process.

The aim of this document is to deliver a master thesis that is well executed, substantiated, and written. This thesis is submitted in partial fulfillment of the requirements for a master degree in Cultural Economics and Entrepreneurship.

Abstract

This study focusses on subsidy dependence of Dutch performing arts venues, and on the cultural value / subsidy ratio of these venues. The samples consist of Dutch performing arts venues for the years 2010 and 2012. The information is collected from the Theatre Analysis System. Several conclusions about the effects on subsidy dependence of Dutch performing arts venues can be drawn from this research. Firstly, the size of the performing arts venue, and the percentage of subsidized performances have a significant positive effect on the subsidy dependence of Dutch performing arts venues. Secondly, the number of citizens living in the city where the Dutch performing arts venue is located, the percentage of sponsored income, and the programming of non-theatrical events do not significantly affect the subsidy dependence of Dutch performing arts venues. Furthermore, the following conclusions about the effects on the cultural value / subsidy ratio of Dutch performing arts venues can be drawn from this research. Firstly, the results of this study conclude that the number of citizens living in the city where the Dutch performing arts venue is located, and the programming of non-theatrical events have a significant positive effect on the cultural value / subsidy ratio of Dutch performing arts venues. Secondly, it is concluded that the percentage of sponsored income has no significant effect on the cultural value / subsidy ratio of Dutch performing arts venues. Thirdly, the results about the effect of size of the performing arts venues on the cultural value / subsidy ratio remain inconclusive.

Keywords: performing arts realm, performing arts venue, subsidy dependence, cultural value, subsidy.

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1. Introduction

The performing arts realm receives a lot of attention in the cultural economics academic literature (Brooks, 2006), because culture, and hence performing arts, is important for the society (Ministerie van Onderwijs Cultuur en Wetenschap, 2012). The performing arts realm consists of performing arts venues, specific performers and performing companies, which all have some specific and common characteristics. One characteristic indicates that performing arts organizations are mostly non-profit organizations (Towse, 2011). The total revenue of the non-profit performing arts organizations can be divided between earned revenue, and unearned revenue. Earned revenue includes for example the ticket sales and ancillary services. Unearned revenue can be distinguished between donations from the public sector, which is called subsidy, and donations from the private sector (Brooks, 2006). Performing arts organizations usually are in need of subsidy, because otherwise they will suffer from artistic deficit (Heilbrun & Gray, 1993), or cannot survive.

First, this study focusses on subsidy dependence of performing arts venues in The Netherlands. Subsidy dependence provides an indication on how much municipal subsidy is needed for every visitor of a Dutch performing arts venue. Subsidy dependence is interesting for the management of Dutch performing arts venues. The first aim of this study is to find several determinants of the subsidy dependence of performing arts venues in The Netherlands. To do so, a linear multiple regression analysis is executed. In addition, the ten Dutch performing arts venues that have the lowest subsidy dependence are compared with the ten Dutch performing arts venues that have the highest subsidy dependence. The differences in firm, organizational, and environmental characteristics of these performing arts venues are analyzed. Therefore, several t-tests and Mann-Whitney U tests are executed.

Second, since subsidy dependence is not the most important objective of most Dutch performing arts venues, this study also focusses on the cultural value / subsidy ratio of performing arts venues in The Netherlands. The cultural value / subsidy ratio provides an indication on how much cultural value is generated by the performing arts venue with the received amount of municipal subsidy. The cultural value / subsidy ratio is an interesting tool for policy makers in The Netherlands and the management of the Dutch performing arts venues. The second aim of this study is to find various determinants of the cultural value / subsidy ratio of performing arts venues in The Netherlands. Therefore, a linear multiple regression analysis is executed. Moreover, the ten Dutch performing arts venues that have the lowest cultural value / subsidy ratio are compared with the ten Dutch performing arts venues that have the highest cultural value / subsidy ratio. By executing

various t-tests and Mann-Whitney U tests, the differences in firm, organizational, and environmental characteristics of these performing arts venues are analyzed.

The sample consists of Dutch performing arts venues that are a member of the Dutch association of theatre and concert hall executives, and participate in the data collection of this association. The members of the association of theatre and concert hall executives include professional performing arts venues which have the programming of the performing arts as their main objective. From these performing arts venues the data of 2010 and 2012 are collected from the database of the association of theatre and concert hall executives. In 2010, 139 performing arts venues are represented in the sample, and in 2012, 108 performing arts venues are represented in the sample.

Several conclusions about the effects on subsidy dependence of Dutch performing arts venues can be drawn from this research. Firstly, it can be concluded that the size of the performing arts venue, and the percentage of subsidized performances have a significant positive effect on the subsidy dependence of Dutch performing arts venues. Secondly, the number of citizens living in the city where the Dutch performing arts venue is located, the percentage of sponsored income, and the programming of non-theatrical events do not significantly affect the subsidy dependence of Dutch performing arts venues. In addition, several conclusions about the effects on the cultural value / subsidy ratio of Dutch performing arts venues can be drawn from this research. Firstly, this study concludes that the number of citizens living in the city where the Dutch performing arts venue is located, and the programming of non-theatrical events have a significant positive effect on the cultural value / subsidy ratio of Dutch performing arts venues. Secondly, it is concluded that the percentage of sponsored income has no significant effect on the cultural value / subsidy ratio of Dutch performing arts venues. Finally, the results about the effect of the size of the Dutch performing arts venues on the cultural value / subsidy ratio remain inconclusive.

The following chapters of this master thesis are structured as follows: Chapter 2 reviews the literature, which concerns the performing arts realm, subsidy, subsidy dependence, and the cultural value / subsidy ratio. Chapter 3 describes the research design and the sample selection. In Chapter 4, the results about the subsidy dependence of Dutch performing arts venues are described. In Chapter 5, the results about the cultural value / subsidy ratio of Dutch performing arts venues are described. Finally, Chapter 6 discusses the implications of the results, provides the contributions of this study, and provides suggestions for future research.

2. Literature review

2.1. The performing arts realm

Culture, and hence the performing arts, are important to many people. People are visiting the performing arts venues, learn about the performing arts at school, and might live near a performing arts venue. 75 percent of the Dutch population considers art and culture to be important, and 85 percent of the Dutch population considers arts and culture to be important for the development of children (Ministerie van Onderwijs Cultuur en Wetenschap, 2012). As a result, the performing arts realm received a lot of attention in the cultural economics academic literature (Brooks, 2006).

The performing arts realm consists of various groups including spoken theatre, music, dance, orchestras, circus, and the like. Even though the performing arts realm consists of various groups, all performing arts organizations have common characteristics. Performing arts organizations require highly skilled labour with a varied character, and the performances are presented at a predetermined time and place. Consequently, the efforts of increasing the revenue or decreasing the costs are necessary in advance of the performance. Furthermore, most performing arts performances are presented at a purpose built theatre or concert hall, which has a limited capacity concerning audience size and incorporated technological facilities (Towse, 2011).

Performing arts organizations are mostly non-profit organizations. Non-profit organizations must reinvest any revenue or surplus in the purposes of the organization (Netzer, 2011). The main difference between non-profit organizations and for-profit organizations, is that for-profit organizations strive for profit maximization, and non-profit organizations strive for other objectives, such as artistic excellence. Since non-profit performing arts organizations prioritize the artistic vision over market considerations, the marketing, accounting, and human resource functions are all dependent upon the artistic decisions of the non-profit performing arts organization. In practice, this requires a different role of the marketing department (Colbert, 2011a). The most important difference between marketing management of non-profit performing arts organizations and for-profit performing arts organizations is the starting point of the marketing models. On the one hand, profit oriented marketing management starts with the market, because the profit oriented organization starts with analyzing the demand side, the customers (Colbert, 1994). On the other hand, non-profit performing arts marketing management starts within the company with a specific artistic product (Colbert, 2011b).

Performing arts venues include venues that, as a main or additional function, provide a stage for specific performers or performance groups. Examples of performing arts venues include a theatre

or a church with a theatre hall (Langeveld, as cited in Atlas voor gemeenten, 2011). The non-profit performing arts venues pay attention to the artistic quality of the performances, which is an intangible characteristic of the service. In order to ensure the continuing quantity and quality of the performing arts, the performing arts venues are in need of public financing or private philanthropy financing (Evans, 2000).

2.2. Subsidy

The total revenue of performing arts organizations can be divided between earned revenue, and unearned revenue. Earned revenue includes the ticket sales, ancillary services, etcetera. Unearned revenue can be separated between donations from the public sector and donations from the private sector (Brooks, 2006). Salamon et al. (1999) investigated the performing arts realm of 22 countries worldwide, and concluded that on average the earned income covers 50 percent of the total revenue, the public sector provides another 40 percent of the total revenues, and the private sector contributions are about ten percent of the total revenue. Research has shown that society is willing to support the performing arts realm with subsidy. Citizens are able to judge about cultural issues, and hence consent to support performing arts organizations (Frey, 2011).

Various reasons explain why the political sector provides subsidy to the performing arts. These reasons can be distinguished between the demand side, and the supply side. On the demand side, the performing arts sector differs from a well-functioning economic market due to five reasons. Firstly, external benefits in the production and consumption of performing arts are not reflected in the economic markets. Secondly, the option value, which suggests that people value the option of visiting the performing arts, even though, they are not actually attending a performance, is not reflected in the market (Frey, 2011). Society wants to be sure that the performing arts will be available in the future with a proper quantity, quality and variety (Cwi, 1980). Thirdly, the performing arts are considered to be a merit good, which suggests that society finds the performing arts too important to be completely privatized, and therefore the society expects the government to assist in the provision of performing arts (Cwi, 1980). Fourthly, consumers are often badly informed about the supply of the performing arts. Finally, even people with a small budget should be able to attend a performance, and thereby subsidy is used for income distribution (Frey, 2011).

On the supply side, the performance arts sector differs from a well-functioning economic market due to three reasons. Firstly, the performing arts suppliers find it difficult to increase the labour productivity, and thus their labour costs are continuously and relatively high. Subsidy is provided to the performing arts in order to make up for these high labour costs. In economic sectors other than the performing arts, the productivity increases due to technological improvements. In

these other well-functioning economic sectors, employees can ask for increasing wages, as it can be financed by the increased productivity. It is difficult to increase the productivity in the performing arts, because of the fixed components of the production function, and the labour intensive character of the performing arts (Baumol, 1967). People who are working in the performing arts, also would like to have increasing wages. However, this cannot be financed by the increased productivity. If the increasing wages would be financed by ticket prices, the rate of increasing ticket prices in the performing arts would be much higher than the rate of increasing ticket prices of general products and services (Towse, 2011). So, the government provides subsidy to the performing arts to finance the lack in the increased productivity. Secondly, on average artists are poorer than other people in the society, and therefore the subsidy is an income distribution instrument (Frey, 2011). Finally, the performing arts realm attracts tourists, creates jobs, and therefore the performing arts realm should not only be judged on the short-term economic performance of an individual performing arts organization (Evans, 2000).

The government provides subsidy to the performing arts through various channels. These subsidies can be divided between indirect and direct subsidies. The Dutch government provides indirect subsidies to the performing art in several manners. The indirect subsidies include for example that the performing arts are charged with the lower VAT rate of six percent instead of 21 percent. Moreover, several discount vouchers for the youth, elderly, and less fortunate people are available in The Netherlands (Goudriaan, de Groot, Notenboom, Schrijvershof & van Hout, 2008). In addition, donations to performing arts organization with a quality label of Public Benefit Organization are deductible from the corporate or private taxable income (Brooks, 2006; Belastingdienst, n.d.).

The Dutch government provides direct subsidies to the performing arts in several manners. The direct subsidies include direct public donations to the performing arts organizations (Brooks, 2006). The ministry of education, culture and science provides subsidy to specific performance groups through the so-called basicinfrastructure. Performing arts organizations can apply for a four year subsidy to carry out specific activities. Performing arts organizations need to fulfill various criteria in order to qualify for subsidy by the basicinfrastructure. For example, audience reach, entrepreneurial activities, the provision of performances with (inter)national significance, and participation and education are important criteria for the basicinfrastructure (Staatssecretaris van Onderwijs Cultuur en Wetenschap, n.d.). The basicinfrastructure provides €136.360.000 to the performing arts per year as of 2013 till 2016 (Raad voor Cultuur, 2012). Furthermore, the Dutch government has established the Fund Performing Arts, which provides subsidies to specific performers or performance groups. In order to receive an amount of subsidy, the specific performer or performance group needs to fulfill various norms and has several characteristics. At first, quality is

the most important indicator in the decision whether a specific performer or performance group should receive subsidy. However, due to the policy changes other determinants are introduced in the decision making process. Now, entrepreneurship, audience reach, international interests, regional distribution and special talents have become more important determinants in the decision making process of the allocation of subsidy. The Fund Performing Arts has introduced the standard that 20 percent of the regular revenues should be earned revenues. In 2012 the Fund Performing Arts provided €24.500.000 to the performing arts (Ministerie van Onderwijs Cultuur en Wetenschap, 2012). In addition, the provinces provide incidental subsidies to the performing arts, which was €26.000.000 in 2012 (Cebeon, 2013).

The Dutch municipalities provide subsidies to the Dutch performing arts venues (Ministerie van Onderwijs Cultuur en Wetenschap, 2012). In 2012 the Dutch municipalities provided €298.000.000 to the performing arts venues (Cebeon, 2013). Usually around every four years the performing arts venues put their artistic principles in an artistic plan. The artistic principles are based on the cultural policy of the municipality, which individually differs, the total resources of the municipality, which are available for culture, and the ambitions of the performing arts venue. In general, after consultation between the management of the performing arts venue and the municipality, some quantitative and qualitative requirements of the municipality are stated in the artistic plan of the performing arts venue. Thereafter, the amount of subsidy will be determined for the planned period, which can be annually adapted for the price index (Chasse, n.d.).

2.3. Subsidy dependence

As discussed before, market imperfections in the performing arts lead to governmental intervention, and governmental interventions might cause misallocation of raw materials and resources, and hence governmental intervention cause subsidy dependence (Langeveld, 2006). It is argued that the performing arts organizations can decrease their subsidy dependence.

Subsidy dependence is used as both a measure as well as an objective of performing arts venues. Evans (2000) explains that subsidy dependence can be measured in two manners. Firstly, subsidy dependence can be measured by the ratio of inputs to outputs. Secondly, it can be measured by the rate at which inputs are transposed to outputs. The inputs are the amount of subsidy, and the outputs the number of visitors or performances. In this study the subsidy dependence is indicated by the subsidy per visitor.

The Dutch government will reduce the amounts of subsidy the next couple of years, due to the financial crisis. As a consequence, the performing arts organizations should try to diminish its

subsidy dependence. A particular performer or performance group can decrease its subsidy dependence for instance by being part of a production house. In a production house, various choreographers and theatre directors can make theatre pieces, but they have one back office administration, commercial director, facilities, and the like. If a choreographer or theatre director fails since the subsidy is diminished or eliminated, the production house is still able to continue and give another choreographer or theatre director the opportunity to make a theatrical production (Langeveld, 2006). A performing arts venue can decrease its subsidy dependence as it is measured by the amount of subsidy per visitor, by merging several venues into one operation. Thereby, different expenses e.g. back office costs and overhead costs are diminished per venue. Langeveld (2006) concludes that this decreases the subsidy dependence.

2.4. Determinants of subsidy dependence

It is argued that the performing arts organizations can decrease their subsidy dependence. Therefore, it would be interesting for policy makers and the management of Dutch performing arts venues to know the determinants of subsidy dependence of Dutch performing arts venues. Several organizational, firm, and environmental characteristics determine the amount of subsidy, the number of visitors, and thus the subsidy dependence of Dutch performing arts venues.

The first hypothesis concerns the effect of the size of the venue on the subsidy dependence of performing arts venues in The Netherlands. On the one side, the management of performing arts venues argues that the performing arts venues should be larger in size, since they assume this generates economies of scale, and hence decreases the subsidy dependence. More seats in a hall generate more box office revenues if a popular production is programmed. In addition, if more halls are located in the same performing arts venue and the performances in both halls are programmed around the same time, the personnel costs concerning execution of performances can be diminished. For example the personnel costs of the porter, host, box office, and the like can be allocated at two different performances. As a consequence, the costs per visitor will decrease (Langeveld, 2006), which suggests that the subsidy dependence will decrease. Furthermore, it is concluded that the number of venues in one performing arts organization has a negative effect on the subsidy dependence of performing arts venue. On the other side, the policy makers and municipalities mostly only take the capital costs of a performing arts venue into consideration. The capital, maintenance, energy, cleaning, and insurance costs will increase as performing arts venues are lager in size, and therefore, the policy makers and municipalities prefer a smaller performing arts venue. In addition, diseconomies of scale also occur at performing arts venues (Langeveld, 2006). It has been found that performing arts venues, with a relative high number of halls and a relative high number of seats, are

both more dependent on subsidy, this might be due to the increased overhead costs and other diverse costs which remove the economies of scale concerning personnel costs (Langeveld, 2006). As a consequence, it is expected that a relative large performing arts venue is more dependent on subsidy.

Hypothesis 1: Relative large Dutch performing arts venues are more dependent on subsidy.

Second, performing arts venues are more often located at larger cities. Furthermore, Costa and Kahn (2000) conclude that relative more high educated people live in large cities. Relative high educated people visit the performing arts venues more often. As a consequence, it can be argued that performing arts venues in larger cities have relative more visitors, and hence they have a higher level of capacity utilization. Therefore, it is expected that performing art venues, which are located in a city with relative more citizens, have a lower subsidy dependence.

Hypothesis 2: Dutch performing arts venues, which are located in a relative large city, are less dependent on subsidy.

Third, private donations and sponsor income have a fundamental role in the support of performing arts venues in the United States (Borgonovi, 2006). Also in The Netherlands private donations are encouraged by the government and the managers of performing arts venues. Performing arts venues, which generate a relative high percentage of sponsor income, would be more able to provide their services with relative fewer subsidies. Therefore, it is expected that performing arts venues with a relative high percentage of sponsor income, are less dependent on subsidy.

Hypothesis 3: Dutch performing arts venues, which have a relative high percentage of sponsor income, are less dependent on subsidy.

Fourth, most performing arts venues program non-theatrical events, which include profitable rentals for meetings, conferences, receptions, etcetera. These profits are usually invested in theatrical events. As a consequence, performing arts venues which program non-theatrical events, might be less dependent on subsidy, since these performing arts venues are able to generate some financial support for the programming of theatrical events themselves. Therefore, it is expected that performing arts venues, which program relative more non-theatrical events, are less dependent on subsidy.

Hypothesis 4: Dutch performing arts venues, which program relative more non-theatrical events, are less dependent on subsidy.

Fifth, subsidy dependence differs between various genres in the performing arts. Performing arts venues that try to decrease the subsidy dependence, which is measured by the amount of subsidy per visitor, will put their effort in the maximization of the number of visitors and not in the artistic quality of the performances. As a consequence, performances of a high artistic quality will be less often programmed (Towse, 2010). Therefore, it can be assumed that the amount of municipal subsidy per visitor is higher for performances of high artistic quality, and hence that the percentage of subsidized performances have a negative effect on the subsidy dependence of Dutch performing arts venues.

Hypothesis 5: *Dutch performing arts venues, which program relative more subsidized performances, are more dependent on subsidy.*

2.5. Artistic quality

Performing arts venues receive subsidy by the municipality, if the artistic principles of the performing arts venues are aligned with the cultural policy of the municipality (Chasse, n.d.). In addition, quality is the most important indicator in the decision whether a specific performer or performance group should receive subsidy (Ministerie van Onderwijs Cultuur en Wetenschap, 2012).

The artistic quality of the performing arts is hard to determine before and even after the consumption, because artistic quality will always be a subjective issue in the performing arts realm (Wijnberg, 2011). Nevertheless, the evaluation of the artistic performance affects the performing arts organizations, and hence the artistic quality is important to them (Kleber, as cited in Chiaravalloti, n.d.). Moreover, the measurement of the artistic quality is also important for policy makers, funds, sponsors, and the like (Radbourne, Johanson, Glow & White, 2009). Artistic quality is hard to determine, because several aspects of quality can be distinguished. For example, the diversity of the repertoire of a performing arts organization (Werck & Heyndels, 2007), and the image of a performing arts organization also influences the perceived quality of a performing arts organization (Urrutiaguer, 2002).

As a consequence, various performance measures are established in order to measure the artistic quality of performing arts organizations. Some studies have measured the quality of the performing arts with the achievement of the objectives of the performing arts organization, the rating by critics, the reputation of the director, or the allocated awards (Radbourne et al., 2009; Towse, 2011). Other studies use quantitative performance indicators, such as earned income, number of subscribers, attendance level, number of new productions, or number of performances (Boerner & Renz, 2008). In addition, Radbourne et al. (2009) suggest that the quality of the

performing arts should be measured with audience experience measures, which could be the transfer of knowledge, authenticity and performer interaction, risk management, or collective engagement.

2.6. Cultural value / subsidy ratio

Research has shown that the society is willing to support the performing arts realm with subsidies (Frey, 2011). Nevertheless, the subsidy needs to be invested in projects which generate cultural value for society. It would be interesting for policy makers to know which performing arts venues generate the most cultural value with the received amount of municipal subsidy. The cultural value / subsidy ratio provides an indication on how much cultural value is generated with the received amount of subsidy.

The generated cultural value of the performing arts organization is hard to measure, since the cultural value of performing arts organizations has several components. The first component, which is related to the cultural value of performing arts venues, is the artistic quality of the performances. It is assumed that subsidized performances have a relative high artistic quality. The artistic quality of a performance is related to the cultural value, since a performance of high artistic quality generates more cultural value for the society. Therefore, the percentage of subsidized performances influences the cultural value positively. The second component, which is related to the cultural value of the Dutch performing arts venues, is the number of visitors of the performing arts venue (Mommaas, 2012). The question is if an artistic performance presented for an empty hall generates cultural value. In this study, it is assumed that the perceived cultural value is higher, when more people experience the performance. So, performing arts venues should try to increase the number of visitors, since this increases the total perceived cultural value. Performing arts venues, which attract more visitors, generate therefore more cultural value. Since this study is limited by time and data, only these two components of the cultural value are implemented in the measurement. As a consequence, the cultural value is measured by the number of visitors multiplied by one plus the percentage of subsidized performances. This is one approximation which is used to measure the cultural value, other approximations might be added, and can be used for future research.

Subsidy is divided between direct and indirect subsidies. For this measurement only the direct municipal subsidies are included, since the indirect subsidies would be hard to quantify through limited data sources, and time concerns. The total amount of municipal subsidies of a Dutch performing arts venue per year is used as a measurement of subsidy of Dutch performing arts

venues. Thereafter, the cultural value / subsidy ratio is calculated by dividing the cultural value by the subsidy.

2.7. Determinants of cultural value / subsidy ratio

Performing arts venues have different objectives. Nevertheless, many performing arts venues try to maximize its cultural value / subsidy ratio. It is interesting for the management of performing arts venues and policy makers to know the determinants of the cultural value / subsidy ratio. It is suggested that some organizational, firm and environmental characteristics determine the amount of subsidy, the artistic quality, and the number of visitors, and thereby the cultural value / subsidy ratio.

Several studies tried to find whether there is a relationship between the programming choices and the size of the performing arts venue. Neligan (2006), Heilbrun (2001), and Pierce (2000) do not find a significant relationship between the programming and the size of the performing arts venue. However, DiMaggio and Stenberg (1985) conclude that large performing arts venues program more conventional performances, and hence less performances of high artistic quality. Castaner and Campos (2002) also suggest that larger performing arts venues program more conventional performances, since these performing arts venues avoid changes. In addition, more adventurous performances are often programmed in relative small halls, since these halls provide the opportunity to program experimental performances (Boyden Associates, 2000). As a consequence, it is expected that large performing arts venues have a lower cultural value / subsidy ratio in The Netherlands.

Hypothesis 6: *Relative large Dutch performing arts venues have a lower cultural value / subsidy ratio.*

DiMaggio and Stenberg (1985) conclude that performing arts venues in New York City are more innovative with their programming than performing arts venues in other parts of the United States. This might be due to three reasons. Firstly, relative more performing arts venues are located in New York City. Secondly, the labour market is relative more crowded in New York City. Thirdly, in New York City are relative more potential consumers, and relative more well educated potential consumers, who prefer high artistic quality performances over entertainment performances. These findings are consistent with the differences between larger and smaller cities in The Netherlands. The Dutch Central Bureau for Statistics (2013) concludes that in 17 of the 25 largest cities at least two performing arts venues are located within five kilometres in the year 2011. Van Aalst, Atzema, Boschma, Heinz, and Oort (2005) investigated the distribution of people who are working in the creative industries, and found that citizens, who are working in the creative industries, are more likely to live in the larger cities of The Netherlands. Costa and Kahn (2000) conclude that relative

more high educated people live in large cities. Therefore, it is expected that performing arts venues, which are located in a larger city, generate more cultural value for the society, and hence have a higher cultural value / subsidy ratio.

Hypothesis 7: Dutch performing arts venues, which are located in a relative large city, have a higher cultural value / subsidy ratio.

Pierce (2000) concludes that the financial involvement of private donors and sponsor income has a positive effect on the programming of high risk performances. High risk performances exclude performances which are famous or easily produced performances, but they have a positive effect on the artistic quality. Besides, if a performing arts venue receives relative more revenues through sponsor income, the performing arts venues will be less dependent on the subsidy. As a consequence, it is expected that Dutch performing arts venues with a relative high amount of sponsor income, have a high cultural value / subsidy ratio.

Hypothesis 8: Dutch performing arts venues, which have a relative high percentage of sponsor income, have a higher cultural value / subsidy ratio.

Most performing arts venues program profitable non-theatrical events, which include the rental for meetings, conferences, receptions, and the like. These profits are invested in the provision of theatrical events. As a consequence, it is expected that performing arts venues, which program non-theatrical events, will program more theatrical events. Furthermore, it is expected that the profits of the non-theatrical events contribute to the provision of more expensive performances, which often implies high quality performances. Therefore, it is expected that performing arts venues, which program relative more non-theatrical events, have a higher cultural value / subsidy ratio.

Hypothesis 9: Dutch performing arts venues, which program relative more non-theatrical events, have a higher cultural value / subsidy ratio.

3. Research design and sample selection

3.1. Research design

This study focusses on the subsidy dependence of performing arts venues in The Netherlands. In this study, it is investigated whether there are determinants of the subsidy dependence of performing arts venues in The Netherlands. To do so, a linear multiple regression analysis is executed. The first regression model is used for the dependent variable subsidy dependence. Furthermore, the ten Dutch performing arts venues that have the lowest subsidy dependence are compared with the ten Dutch performing arts venues that have the highest subsidy dependence. The differences in firm, organizational, and environmental characteristics of these performing arts venues are analyzed, by executing several t-tests and Mann-Whitney U tests.

(1) Logarithm of subsidy dependence = $\beta_0 + \beta_1$ * size organization + β_2 * buildings + β_3 halls + β_4 * seats + β_5 * size city + β_6 * sponsor income + β_7 * number non-theatrical events + β_8 * visitors non-theatrical events + β_9 * subsidized program + ε

Since subsidy dependence is not the most important objective of most Dutch performing arts venues, this study also focusses on the cultural value / subsidy ratio of performing arts venues in The Netherlands. In this study, it is investigated whether there are some determinants of the cultural value / subsidy ratio of performing arts venues in The Netherlands. Therefore, a linear multiple regression analysis is executed. The second regression model is used for the dependent variable, cultural value / subsidy ratio. Furthermore, the ten Dutch performing arts venues that have the lowest cultural value / subsidy ratio are compared with the ten Dutch performing arts venues that have the highest cultural value / subsidy ratio. The differences in firm, organizational, and environmental characteristics of these performing arts venues are analyzed, by executing several t-tests and Mann-Whitney U tests.

(2) Cultural value / subsidy ratio = $\beta_0 + \beta_1$ * size organization + β_2 * buildings + β_3 * halls + β_4 * seats + β_5 * size city + β_6 * sponsor income + β_7 * number of non-theatrical events + β_8 * visitors non-theatrical events + ε

3.2. Measurement

This research has a quantitative and deductive approach. The measurement of both the dependent variables and the independent variables is shown in Table 1. The data are cross sectional since the Dutch performing arts venues are compared with each other, and sample 1 only concerns the year

2010, and sample 2 only concerns the year 2012. This study does not investigate the development throughout the years, which is carried out by longitudinal studies.

The subsidy dependence provides an indication on how much subsidy is needed for every visitor of a Dutch performing arts venue. In this study, subsidy is measured by the total received amount of direct municipal subsidies of the Dutch performing arts venues. The indirect subsidies of performing arts venues are not implemented in this study. The visitors are measured by the total number of visitors of theatrical performances in the performing arts venues for a particular year. The subsidy dependence is measured by subsidy divided by visitors. Since the variable subsidy dependence is not normally distributed, the variable subsidy dependence is transformed into the logarithm of subsidy dependence. The logarithm of subsidy dependence has reduced the non-normality, and hence this measure is used in the regression model and in the correlation matrix. For the descriptive statistics and the Mann-Whitney U tests the level of subsidy is measured by subsidy divided by visitors, since these tests are executed according to the non-parametric approach.

The cultural value / subsidy ratio provides an indication on how much cultural value is generated by the performing arts venue with the received amount of municipal subsidy. In this study, subsidy is measured by the total received amount of direct municipal subsidies of the Dutch performing arts venues. The indirect subsidies to Dutch performing arts venues are not implemented in the measurement of this variable. The cultural value is measured by the total number of visitors multiplied by one plus the percentage of high quality performances in the performing arts venue. The visitors are measured by the total number of visitors of theatrical events in performing arts venues for that particular year. The percentage of high quality performances is measured by the percentage of subsidized performances in comparison to the total number of performances. The cultural value / subsidy ratio is measured by cultural value divided by subsidy. Since the cultural value / subsidy ratio is not normally distributed, it is attempted to transform the variable in order to reduce the non-normality. Nevertheless, neither the logarithm of the cultural value / subsidy ratio, nor the square of the cultural value/ subsidy ratio has reduced the non-normality. Therefore, the measurement cultural value divided by subsidy is used in the regression analysis, correlation matrix, and in the non-parametric Mann-Whitney U tests.

The variable size is indicated by several measures, including the size of the organization which is measured by the natural logarithm of total employees in FTE (Bouwens & van Lent, 2006), number of buildings, number of halls, and number of seats. Sponsor income is indicated by the percentage of sponsor income relative to total income. The independent variable non-theatrical event is indicated by the number of non-theatrical events, and the number of visitors of non-

theatrical events. The percentage of subsidized performances is also included as independent variable in Model 1.

The data of the Theatre Analysis System are used for this study. Since 1997, the Dutch association of theatre and concert hall executives collects data of their performing arts venues in the Theatre Analysis System. The Theatre Analysis System provides an overview of the data of all the performing arts venues that participate in the data collection, and are a member of the Dutch association of theatre and concert hall executives. The collected data about the performing arts venues includes information about the various kinds of performances, the number of visitors, personnel, finances, etcetera. The Theatre Analysis System wants to be a benchmarking system, which suggests that the Theatre Analysis System provides insight for the executives of performing arts venues into their own performances, and into their relative performance. The insight into the positioning of the performing art venues in comparison with other performing arts venues is valuable for the executives of performing arts venues (Theater Analyse Systeem, n.d.). The data about the size of the city is retrieved from the Central Bureau of Statistics.

Table 1

Variable description and measurement

Variable	Measurement
Logarithm subsidy dependence	Logarithm of $\frac{\text{subsidy}}{\text{visitors}}$
Subsidy dependence	$\frac{\text{subsidy}}{\text{visitors}}$
Subsidy	Total amount of received municipal subsidy
Visitors	Total number of visitors of theatrical performances
Cultural value / subsidy ratio	$\frac{\text{cultural value}}{\text{subsidy}}$
Cultural value	Visitors * (1+ $\frac{\text{quality performances}}{\text{performances}}$)
Visitors	Total number of visitors of theatrical performances
Quality performances	Number of subsidized performances
Performances	Total number of performances
Subsidy	Total amount of received municipal subsidy
Size organization	Natural logarithm of total employees in FTE
Buildings	Number of buildings
Halls	Number of halls
Seats	Total number of seats in the venue
Size city	Average number of citizens in the city were the venue is located
Sponsoring income	Percentage of sponsoring income relative to total income
Number non-theatrical events	Total number of non-theatrical events
Visitors non-theatrical events	Total number of visitors of non-theatrical events
Subsidized program	Percentage of subsidized performances relative to total performances

3.3. Elaboration on the various tests

Various tests are executed with SPSS Statistics 21 in order to test the hypothesis, and to analyze the performing arts venues with the lowest and highest subsidy dependence or cultural value/ subsidy ratio. Only for the Kolmogorov-Smirnov test a significance level of five percent is used, otherwise a significance level of ten percent is used. A significance level of ten percent is more often used in political science, sociology and economics.

In order to test whether the dependent and independent variables were normal distributed, the Kolmogorov-Smirnov test is executed. For the Kolmogorov-Smirnov tests, the following hypothesis is tested. In the case that the significance is above 0,050, the H_0 must be rejected, and it must be concluded that the variable is not normal.

H_0: Variable is normal against H_1: Variable is not normal

In order to compose a correlation matrix, the Pearson correlation matrix is used if the model has a normal distributed dependent variable. The Spearman correlation matrix is used if the dependent variable of the model is not normally distributed.

Since a multiple linear regression analysis must show the results about the effect of the independent variables on the dependent variable, various linear regression analyses are executed. Hypothesis 1, hypothesis 5, hypothesis 7, hypothesis 8, and hypothesis 9 suggest that the independent variable has a positive effect on the dependent variable. Therefore, the following hypothesis is tested. In the case that the significance is below 0,100 and $\beta > 0$, the H_0 must be rejected. The hypothesis must be accepted, and it is concluded that the independent variable has a significant positive effect on the dependent variable.

H_0: $\beta \leq 0$ against H_1: $\beta > 0$

Hypothesis 2, hypothesis 3, hypothesis 4, and hypothesis 6 suggest that the independent variable has a negative effect on the dependent variable. Therefore, the following hypothesis is tested. In the case that the significance is below 0,100 and $\beta < 0$, the H_0 must be rejected. The hypothesis must be accepted, and it is concluded that the independent variable has a significant negative effect on the dependent variable

H_0: $\beta \geq 0$ against H_1: $\beta < 0$

In addition, it is tested whether significant differences exist between the index numbers of performing arts venues with the lowest subsidy dependence or cultural value / subsidy ratio and the

index numbers of performing arts venues with the highest subsidy dependence or cultural value / subsidy ratio. If the index number is normal, an independent samples t-test is executed. Therefore, it is first tested whether equal variance is or is not assumed, with the Levene's test. In the case that the significance is below 0,100, the H_0 must be rejected, and it must be concluded that the variance is not equal.

H_0: variance = equal against H_1: variance ≠ equal

Thereafter, the independent samples t-test for equality of means is executed. The following hypothesis is tested, and in the case that the significance is below 0,100, the H_0 must be rejected, and it must be concluded that the means are not equal. As a consequence, it can be concluded that the two population locations are not the same, and hence that the index number of performing arts venues with the lowest subsidy dependence or cultural value / subsidy ratio is significant different from the index number of performing arts venues with the highest subsidy dependence or cultural value / subsidy ratio.

H_0: mean = equal against H_1: mean ≠ equal

If the index number is not normally distributed, a Mann-Whitney U test is executed in order to test whether the index numbers of performing arts venues with the lowest subsidy dependence or cultural value / subsidy ratio differs significantly from the index numbers of performing arts venues with the highest subsidy dependence or cultural value / subsidy ratio. The Mann-Whitney U test compares the mean ranks instead of the means, which are compared with the independent samples t-test. The following hypothesis is tested, and in the case that the significance is below 0,100, the H_0 must be rejected, and it must be concluded that the mean ranks are not equal. As a consequence, it can be concluded that the two population locations are not the same, and hence that the index number of performing arts venues with the lowest subsidy dependence or cultural value / subsidy ratio is significant different from the index number of performing arts venues with the highest subsidy dependence or cultural value / subsidy ratio.

H_0: mean rank = equal against H_1: mean rank ≠ equal

3.4. Sample selection

The sample consists of Dutch performing arts venues which are a member of the Dutch association of theatre and concert hall executives, and participated in the data collection of the Theatre Analysis System. The members of the association of theatre and concert hall executives include professional performing arts venues with a main objective of the programming of performing arts. Data of the

years 2010 and 2012 are retrieved from the Theatre Analysis System, and the Central Bureau of Statistics. Three samples are used in this study to account for the various years. Sample 1 consists of the year 2010, sample 2 consists of the year 2012, and sample 3 consists of the years 2010 and 2012. The number of performing arts venues differs in the samples, since some performing arts venues did not provide the data of the year 2010, as well as the year 2012. Since the second sample which concerns the year 2012, is relative smaller, it is expected that less significant effects are shown between the dependent and independent variables. Therefore, sample 3, which concerns the year 2010 and the year 2012, is added in order to check whether the results are not only valid for a particular year. Data of festivals are excluded from the samples, since they do not program theatrical performances that often per year, they do not have an own venue, etcetera. Besides, some performing arts venues did not completely fill in the database, or provided data which were unrealistic outliers, and hence these performing arts venues are also excluded from the samples. Therefore, the first sample consists of 139 performing arts venues, the second sample consists of 108 performing arts venues, and the third sample consists of 247 performing arts venues (Table 2). In the third sample, 37 performing arts venues are only one time represented, and of 105 performing arts venues the data of both 2010 and 2012 are represented in the sample (Table 3).

Table 2

Sample selection

	Sample 1	Sample 2	Sample 3
	Number of venues	Number of venues	Number of venues
Data of venue in 2010	152	0	152
Data of venue in 2012	0	150	150
Less: Festivals	6	5	11
Less: Missing data of venue	7	37	44
Final sample	139	108	247

Table 3

Frequency table sample 3

Venue is only for 1 year represented	37
Venue is for 2 years represented	105

4. Results subsidy dependence

4.1. Descriptive statistics of the subsidy dependence

Table 4 shows the results of the Mann-Whitney U test, and the mean rank of the subsidy dependence for 2010 and 2012. Since the subsidy dependence is not normal, this non-parametric test is executed. For this Mann-Whitney U test the subsidy dependence of 2010 is compared to the subsidy dependence of 2012. The results show that the mean rank of the subsidy dependence in 2010 is 120, and the mean rank of the subsidy dependence in 2012 is 129. The mean rank of the subsidy dependence has slightly increased during the years. Nevertheless this increase is not significant (p>0,100), so no inferences can be made.

Table 4

Mann-Whitney U test

	Subsidy dependence
Year 2010	120
Year 2012	129
P-value	(0,327)

The descriptive statistics of the dependent and independent variables are measured for all three samples. Table 6 displays the results of sample 1 and sample 2. The results of the descriptive statistics of the third sample are displayed in Appendix A, since sample 3 concerns the control sample.

The mean subsidy dependence is 25,16 in sample 1 which concerns the year 2010, and 25,94 in sample 2 which concerns the year 2012. This suggests that in 2010 on average €25,16 direct municipal subsidy is needed for every visitor of a performing arts venue in The Netherlands. In 2010 the subsidy dependence varies between €6,44 and €79,35. The descriptive statistics show that the median number of buildings is one, and the median number of halls in Dutch performing arts venues is two in both 2010 and 2012. The total number of seats in the performing arts venues varies between 118 and 4181, which is consistent in 2010 and 2012. The minimum number of citizens living in the city were the performing arts venue is located is 11.371 citizens in 2010, and the maximum number of citizens living the city were the performing arts venue is located is 794.694 citizens in 2012. The income generated by sponsors is on average one percent of the total income in both 2010 and 2012. The average number of non-theatrical events increased from 131 in 2010, to 196 in 2012. In both 2010 and 2012, performing arts venues which do not program any non-theatrical events are

represented in the sample. On average 11 percent of the performances in performing arts venues are subsidized performances in 2010, and on average 12 percent of the performances in performing arts venues are subsidized performances in 2012. Performing arts venues that only provide subsidized performances and performing arts venues that do not provide any subsidized performances are both represented in 2010.

In order to check for homogeneity, Table 5 shows the results of the Levene's test for equality of variances. There should be an approximate equal amount of variability in each sample. The result shows that equal variance can be assumed (p>0,100).

Table 5

Levene's Test

	Subsidy dependence
P-value	(0,405)

Table 7 presents the Pearson correlation matrix of sample 1, and Table 8 presents that Pearson correlation matrix of sample 2 with the dependent en independent variables of Model 1. The correlation matrix of the control group, sample 3, can be found in Appendix A. The Pearson correlation matrix shows whether there is a relationship between the dependent and various independent variables.

In sample 1 the dependent variable, which is the subsidy dependence, is positive significant correlated at one percent with the independent variables size of the city, and subsidized program. In sample 1 the dependent variable subsidy dependence is not correlated with the independent variables, size of the organization, number of buildings, number of halls, number of seats, the percentage of sponsor income, the number of non-theatrical events, and the number of visitors of non-theatrical events. In sample 2 the subsidy dependence is not significantly correlated with any independent variables. Some independent variables are correlated with each other at one or five percent significance.

Table 6

Descriptive statistics – Model 1

	Sample 1 N=139					Sample 2 N=108				
	Mean	Median	Stand. Dev.	Min.	Max.	Mean	Median	Stand. Dev.	Min.	Max.
Subsidy dependence	25,16	21,79	14,55	6,44	79,35	25,94	25,16	12,79	6,51	81,43
Size organization	2,94	2,90	0,84	-0,22	5,91	2,89	2,89	0,83	-0,26	5,27
Buildings	1,2	1,0	0,5	1,0	3,0	1,2	1,0	0,5	1,0	3,0
Halls	1,9	2,0	0,9	1,0	5,0	2,0	2,0	0,9	1,0	5,0
Seats	914	735	666	118	4181	958	752	708	118	4181
Size city	181325	74870	231074	11371	773633	191534	79374	240669	18157	794694
Sponsor income	0,01	0,00	0,02	0,00	0,12	0,01	0,00	0,02	0,00	0,13
Number non-theatrical events	131	48	274	0	2650	196	70	492	0	4000
Visitors non-theatrical events	16341	9000	24208	0	165000	19690	11053	27748	0	150000
Subsidized program	0,11	0,05	0,16	0,00	1,00	0,12	0,08	0,14	0,00	0,59

Table 7

Pearson correlation matrix - sample 1

Variables	Log. subsidy dependence	Size organization	Buildings	Halls	Seats	Size city	Sponsor income	Number non-theatrical events	Visitors non-theatrical events	Subsidized program
Log. subsidy dependence										
Size organization	0,165									
Buildings	-0,061	-0,009								
Halls	0,155	0,425**	0,495**							
Seats	-0,144	0,594**	0,358**	0,686**						
Size city	0,260**	0,434**	-0,086	0,148	0,213*					
Sponsor income	-0,077	-0,145	0,026	-0,176*	-0,135	-0,165				
Number non-theatrical events	0,048	0,068	0,189*	0,202*	0,085	-0,115	-0,088			
Visitors non-theatrical events	0,015	0,263**	0,201*	0,440**	0,460**	0,015	-0,105	0,701**		
Subsidized program	0,327**	0,296**	0,006	0,177*	0,129	0,369**	-0,116	0,002	-0,056	

* Significant at 5%, 2 tail

** Significant at 1%, 2 tail

Table 8

Pearson correlation matrix - sample 2

Variables	Log. subsidy dependence	Size organization	Buildings	Halls	Seats	Size city	Sponsor income	Number non-theatrical events	Visitors non-theatrical events	Subsidized program
Log. subsidy dependence										
Size organization	0,106									
Buildings	-0,034	-0,030								
Halls	0,181	0,545**	0,426**							
Seats	-0,096	0,644**	0,364**	0,755**						
Size city	0,189	0,415**	-0,011	0,213*	0,179					
Sponsor income	-0,054	0,004	-0,073	-0,093	-0,053	-0,050				
Number non-theatrical events	0,096	-0,002	0,093	0,218*	0,039	-0,085	-0,099			
Visitors non-theatrical events	0,092	0,236*	0,087	0,475**	0,388**	0,021	-0,090	0,750**		
Subsidized program	0,137	0,338**	0,078	0,329**	0,276**	0,316**	-0,169	0,004	0,097	

* Significant at 5%, 2 tail

** Significant at 1%, 2 tail

To check whether the multicollinearity problem affects the sample, the VIF values of the independent variables are calculated for all three samples. Table 9 shows that all the VIF values are below 5, and hence it can be concluded that there is no multicollinearity problem in the sample.

Table 9

VIF values – Model 1

	Sample 1	Sample 2	Sample 3
Variables	VIF value	VIF value	VIF value
Size organization	2,15	2,49	2,23
Buildings	1,63	1,63	1,58
Halls	2,67	3,21	2,82
Seats	3,48	3,61	3,43
Size city	1,37	1,37	1,35
Sponsor income	1,08	1,06	1,06
Number non-theatrical events	2,62	2,93	2,60
Visitors non-theatrical events	3,25	3,54	3,18
Subsidized program	1,27	1,29	1,25

4.2. Regression analysis of the subsidy dependence

Table 10 displays the regressions of Model 1 of sample 1, sample 2, and sample 3. This multiple linear regression analysis tests which independent variables have an effect on the dependent variable which is the logarithm of the subsidy dependence of Dutch performing arts venues. The variables of Model 1 explain 21,3 percent of the variance of the logarithm of the subsidy dependence in 2010 which is the first sample. The independent variables explain 22,4 percent of the variance in the logarithm of the subsidy dependence in 2012 (sample 2). In the third sample 20,2 percent of the variance in the logarithm of the subsidy dependence is explained by the independent variables. Therefore, all the values of R^2 can be considered as high. Furthermore, the ANOVA F-test is significant in all three samples (p=0,001 for sample 1, p=0,004 for sample 2, and p=0,000 for sample 3). So, it can be assumed that Model 1 is valid and has a relative good fit.

The first hypothesis suggests that relative large Dutch performing arts venues are more dependent on municipal subsidy. The variable size of the organization has a significant positive effect on the subsidy dependence in sample 1 and in the control sample 3 (β=0,077; p=0,051 for sample 1, and β=0,069; p=0,015 for sample 3). Besides, the number of buildings, the number of halls, and the

number of seats in Dutch performing arts venues also give an indication on the size of the performing arts venue. The number of buildings does not significantly affect the subsidy dependence of Dutch performing arts venues (p>0,100). The number of halls (β=0,102; p=0,012 for sample 1, β=0,108; p=0,016 for sample 2, and β=0,099; p=0,001 for sample 3) and the number of seats (β=0,000; p=0,000 for sample 1, β=0,000; p=0,000 for sample 2, and β=0,000; p=0,000 for sample 3) positively significantly affect subsidy dependence of performing arts venues in The Netherlands in all three samples. Therefore, it can be concluded that large performing arts venues are more dependent on municipal subsidy, performing arts venues that have relative more halls are more dependent on municipal subsidy, and performing arts venues that have relative more seats are more dependent on municipal subsidy. Therefore, the first hypothesis can be accepted, and it can be concluded that relative large Dutch performing arts venues have a higher subsidy dependence.

The second hypothesis suggests that Dutch performing arts venues, which are located in a relative larger city, are less dependent on municipal subsidy. The results of the multiple linear regression analysis show that the number of citizens living in the city where the Dutch performing arts venue is located does not significantly affect the subsidy dependence of the performing arts venues (p>0,100). Therefore, there is unsufficient evidence to accept the second hypothesis.

The third hypothesis suggests that Dutch performing arts venues, which have a relative high percentage of sponsor income, are less dependent on municipal subsidy. Nevertheless, the percentage of sponsored income does also not have a significant effect on the subsidy dependence of Dutch performing arts venues (p>0,100). As a consequence, there is unsufficient evidence to accept the third hypothesis. This can be explained by the small variation in the percentage of sponsor income. Various studies have tried to find the effect of subsidies on private donations. Borgonovi (2006) concludes that low levels of subsidies correspond to low levels of private donations, as the amount of subsidies increases the amount of private donations also increases, and as the amount of subsidies reaches a specific threshold the amount of private donations starts to decrease. It is expected that the relationship between sponsor income and subsidy is the same as the relationship between donations and subsidy. As a consequence, it can be argued that the percentage of sponsor income does not change significantly, and hence does not significantly affect the subsidy dependence.

The fourth hypothesis suggests that Dutch performing arts venues which program relative more non-theatrical events are less dependent on municipal subsidy. Nevertheless, both the number of non-theatrical events, as well as the number of visitors does not significantly affect the subsidy dependence (p>0,100). Therefore, there is unsufficient evidence to accept the fourth hypothesis.

Since the management of performing arts venues programs non-theatrical events in order to decrease the municipal subsidy dependence, this result is surprising. It might be explained by the higher amount of labour costs, which are a result of the programming of non-theatrical events, the labour costs might outweigh the benefits.

The fifth hypothesis suggests that Dutch performing arts venues, which program relative more subsidized performances, are more dependent on municipal subsidy. The results of the multiple linear regression show that the percentage of subsidized performances held in the performing arts venue affect the dependence on municipal subsidy of Dutch performing arts venues positively in all three samples (β=0,420; p=0,015 for sample 1, β=0,374; p=0,037 for sample 2, and β=0,418; p=0,001 for sample 3). The independent variable subsidized program has a positive effect on the municipal subsidy dependence. Therefore, the fifth hypothesis can be accepted, and it can be concluded that performing arts venues, with relative more subsidized performances, are more dependent on municipal subsidy in The Netherlands.

Table 10

Regression Model 1 – Dependent variable: Subsidy dependence

Independent variables	Hypothesis	Sample 1 Coefficient (p-value)	Sample 2 Coefficient (p-value)	Sample 3 Coefficient (p-value)
Size organization	+	0,077	0,062	0,069
		(0,051)	(0,161)	(0,015)
Buildings	+	0,013	0,008	0,013
		(0,834)	(0,896)	(0,760)
Halls	+	0,102	0,108	0,099
		(0,012)	(0,016)	(0,001)
Seats	+	0,000	0,000	0,000
		(0,000)	(0,000)	(0,000)
Size city	-	0,000	-0,000	0,000
		(0,207)	(0,531)	(0,613)
Sponsor income	-	0,502	-1,368	-0,348
		(0,631)	(0,196)	(0,634)
Number non-theatrical events	-	-0,000	-0,000	-0,000
		(0,636)	(0,285)	(0,273)
Visitors non-theatrical events	-	0,000	0,000	0,000
		(0,290)	(0,325)	(0,129)
Subsidized program	+	0,420	0,374	0,418
		(0,015)	(0,037)	(0,001)

Sample 1:

Number of observations: 139 ; R^2: 0,213 ; P-value ANOVA: 0,001

Sample 2:

Number of observations: 108 ; R^2: 0,224 ; P-value ANOVA: 0,004

Sample 3:

Number of observations: 247 ; R^2: 0,202 ; P-value ANOVA: 0,000

4.3. Analysis of the lowest and highest subsidy dependence

In this part, the performing arts venues with the lowest subsidy dependence are compared to the performing arts venues with the highest subsidy dependence. It is tested whether there is a significant difference between the performing arts venues with the lowest subsidy dependence and the performing arts venues with the highest subsidy dependence. Since the size of the venue is the only variable which is normal distributed, a t-test is executed for this variable. The other variables, including the variable subsidy dependence, are not normally distributed, and therefore the non-parametrical Mann-Whitney U test is executed.

Table 11 shows the means of the variables of Model 1 for the performing arts venues with the lowest subsidy dependence and the performing arts venues with the highest subsidy dependence. Performing arts venues with the lowest subsidy dependence are significantly smaller organizations (mean=2,37) than performing arts venues with the highest subsidy dependence (mean=3,34). The average number of citizens in the city of the performing arts venues with the lowest subsidy dependence is 163.691 citizens, and the average number of citizens in the city of the performing arts venues with the highest subsidy dependence is 525.903 citizens, which is a significant difference (p=0,017). Ten percent of the performances in performing arts venues with the lowest subsidy dependence are subsidized performances. Nevertheless, this is not significantly different from the percentage of subsidized performances of performing arts venues with the highest subsidy dependence which is 22 percent (p>0,100).

Table 11
T-test & Mann-Whitney U tests - Variables Model 1

	Low	High	P-value
Subsidy dependence	7,82	67,96	(0,000)
Size organization	2,37	3,34	(0,074)
Buildings	1,5	1,1	(0,121)
Halls	1,8	2,2	(0,168)
Seats	1103	847	(0,850)
Size city	163691	525903	(0,017)
Sponsor income	0,02	0,01	(0,160)
Number non-theatrical events	132	96	(0,571)
Visitors non-theatrical events	11033	17821	(0,791)
Subsidized program	0,10	0,22	(0,168)

Table 12 provides the averages of some other general index numbers of the performing arts venues. Only the general index number total income and total expenditure differ significantly between performing arts venues with the lowest subsidy dependence and performing arts venues with the highest subsidy dependence. The average total income of performing arts venues with the lowest subsidy dependence is €4.045.788 and their average total expenditure is €4.050.837.The average total income of performing arts venues with the highest subsidy dependence is €5.774.428 and their average total expenditure is €5.783.843. Performing arts venues with the lowest subsidy dependence have on average 565 seats per hall, program on average 224 different performances, and have 118.983 visitors per year. Performing arts venues with the highest subsidy dependence have on average 472 seats per hall, program 177 different performances, and have 66.288 visitors per year.

Table 12
Mann-Whitney U tests - General index numbers

	Low	High	P-value
Average number of seats	565	472	(0,655)
Total program	224	177	(0,762)
Total performances	267	323	(0,174)
Total visitors	118983	66288	(0,762)
Performance / program	1,23	2,12	(0,406)
Total income	4045788	5774428	(0,096)
Total expenditures	4050837	5783843	(0,082)

Table 13 provides the averages of some index numbers per performance of the performing arts venues. The total visitors per performance, and the other income per performance is not significant different for performing arts venues with the lowest subsidy dependence and performing arts venues with the highest subsidy dependence (p>0,100). Performing arts venues with the lowest subsidy dependence spend of average €10.750 per performance. Their average total income is €10.642, which includes €4.853 per performance from box office revenues, €2.507 per performance from subsidies, and €3.282 per performance from other income, which includes advertisement income, rental income, etcetera. Performing arts venues with the highest subsidy dependence spend on average €17.972 per performance. Their average total income is €17.778 per performances, which includes €2.123 per performance from box office revenues, €13.072 per performance from subsidies, and €2.582 per performance from other income. Performing arts venues with the lowest subsidy dependence have on average 324 visitors per performance, and performing arts venues with the highest subsidy dependence have on average 196 visitors per performance (p>0,100).

Table 13

Mann-Whitney U tests - Index numbers per performance

	Low	High	P-value
Total visitors per performance	324	196	(0,131)
Total expenditure per performance	10750	17972	(0,059)
Total income per performance	10642	17778	(0,082)
Box office revenues per performance	4853	2123	(0,070)
Subsidy per performance	2507	13072	(0,000)
Other income per performance	3282	2582	(1,000)

Table 14 provides the averages of some index numbers per visitor of the performing arts venues. Only the box office revenues per visitor is not significant different for performing arts venues with the lowest subsidy dependence and performing arts venues with the highest subsidy dependence ($p>0,100$). Performing arts venues with the lowest subsidy dependence receive on average €33 per visitor, and spend of average €32 per visitor. In contrast, performing arts venues with the highest subsidy dependence receive on average €90 per visitor, and spend of average €91 per visitor.

Table 14

Mann-Whitney U tests - Index numbers per visitor

	Low	High	P-value
Total income per visitor	33	90	(0,000)
Total expenditure per visitor	32	91	(0,000)
Box office revenues per visitor	14	10	(0,199)

5. Results cultural value / subsidy ratio

5.1. Descriptive statistics of the cultural value / subsidy ratio

Table 15 shows the mean rank of the cultural value / subsidy ratio for 2010 and 2012. For this Mann-Whitney U test, the cultural value / subsidy ratio of 2010 is compared to the cultural value / subsidy ratio of 2012. The results show that the mean rank of the cultural value / subsidy ratio in 2010 is 116, and the mean rank of the cultural value / subsidy ratio in 2012 is 132. The mean rank of the cultural value / subsidy ratio has significantly increased during the years (p=0,078).

Table 15
Mann-Whitney U test

	Cultural value / subsidy ratio
Year 2010	116
Year 2012	132
P-value	(0,078)

The descriptive statistics of the dependent and independent variables are measured for all three samples. The independent variables of Model 2, which concerns the cultural value / subsidy ratio, are also included in Model 1, which concerns the subsidy dependence. Therefore, the descriptive statistics of the independent variables of sample 1 and sample 2 can be found in Table 5, and the descriptive statistics of the independent variables of sample 3 can be found in Appendix A. Table 16 displays the results of the descriptive statistics of the cultural value / subsidy ratio of all three samples. The minimum cultural value / subsidy ratio is 0,05 and the maximum is 2,77 in sample 3. According to sample 3, the average cultural value / subsidy ratio of Dutch performing arts venues is 0,83, and the median is 0,63.

Table 16
Descriptive statistics of the cultural value / subsidy ratio

	Mean	Median	Stand. Dev.	Min.	Max.
Sample 1	0,81	0,57	0,63	0,05	2,77
Sample 2	0,85	0,67	0,61	0,05	2,70
Sample 3	0,83	0,63	0,62	0,05	2,77

Since the cultural value / subsidy ratio is not normally distributed, a Spearman correlation matrix is composed. Table 19 presents the Spearman correlation matrix of sample 1 with the dependent and independent variables of Model 2. Table 20 presents the Spearman correlation matrix of sample 2 with the dependent and independent variables of Model 2. The Spearman

correlation matrix of sample 3 can be found in Appendix A. The Spearman correlation matrix shows whether there is a relationship between the dependent and various independent variables.

The dependent variable cultural value / subsidy ratio is positive significantly correlated at one percent with the variables size of the organization, number of seats, and the size of the city where the performing arts venue is located. The same independent variables are positive correlated with the dependent variable in all three samples. The dependent variable cultural value / subsidy ratio is not correlated with the independent variables number of buildings, number of halls, percentage of sponsor income, number of non-theatrical events, and number of visitors of non-theatrical events. Some independent variables are correlated with each other at one or five percent.

Since some independent variables are correlated with each other at one or five percent, there must be checked whether the multicollinearity problem affects the sample. Therefore, the VIF values of the independent variables of Model 2 are calculated for all three samples. Table 17 shows that all VIF values are below 5, and hence it can be concluded that there is no multicollinearity problem in the sample.

Table 17
VIF values – Model 2

Variables	Sample 1 VIF value	Sample 2 VIF value	Sample 3 VIF value
Size organization	2,03	2,49	2,16
Buildings	1,59	1,65	1,55
Halls	2,37	3,09	2,57
Seats	3,05	3,72	3,20
Size city	1,29	1,25	1,26
Sponsor income	1,08	1,03	1,04
Number non-theatrical events	2,48	2,95	2,54
Visitors non-theatrical events	3,02	3,53	3,10

In order to check for homogeneity, Table 18 shows the results of the Levene's test for equality of variances. There should be an approximate equal amount of variability in each sample. The result shows that equal variance can be assumed (p>0,100).

Table 18
Levene's Test

	Cultural value / subsidy ratio
P-value	(0,405)

Table 19

Spearman correlation matrix - sample 1

Variables	Cultural value / subsidy ratio	Size organization	Buildings	Halls	Seats	Size city	Sponsor income	Number non-theatrical events	Visitors non-theatrical events
Cultural value / subsidy ratio									
Size organization	0,283**								
Buildings	0,031	0,105							
Halls	0,074	0,510**	0,429**						
Seats	0,254**	0,697**	0,296**	0,628**					
Size city	0,266**	0,580**	0,105	0,382**	0,366**				
Sponsor income	-0,023	-0,167**	0,044	-0,140	-0,096	-0,227**			
Number non-theatrical events	-0,015	0,181*	0,263**	0,438**	0,235**	-0,059	-0,068		
Visitors non-theatrical events	0,146	0,193*	-0,021	0,041	0,296**	-0,120	0,052	0,051	

* Significant at 5%, 2 tail

** Significant at 1%, 2 tail

Table 20

Spearman correlation matrix - sample 2

Variables	Cultural value / subsidy ratio	Size organization	Buildings	Halls	Seats	Size city	Sponsor income	Number non-theatrical events	Visitors non-theatrical events
Cultural value / subsidy ratio									
Size organization	0,328**								
Buildings	0,091	0,205*							
Halls	0,141	0,646**	0,406**						
Seats	0,270**	0,757**	0,344**	0,704**					
Size city	0,209*	0,562**	0,225*	0,402**	0,286**				
Sponsor income	-0,067	0,083	-0,025	-0,024	0,024	-0,154			
Number non-theatrical events	0,074	0,237*	0,160	0,431**	0,238*	-0,058	-0,016		
Visitors non-theatrical events	0,096	0,150	0,011	-0,005	0,299**	-0,197*	0,171	0,106	

* Significant at 5%, 2 tail

** Significant at 1%, 2 tail

5.2. Regression analysis of the cultural value / subsidy ratio

Table 21 displays the regressions of Model 2 of sample 1, sample 2, and sample 3. This linear regression analysis tests which independent variables have an effect on the dependent variable, which is the cultural value / subsidy ratio of Dutch performing arts venues. A relative high percentage of the variance is explained by the independent variables of Model 2 (r^2=33,6 for sample 1, r^2=20,5 for sample 2, and r^2=26,3 for sample 3). Furthermore, the ANOVA F-test is significant in all three samples (p=0,000 for sample 1, p=0,003 for sample 2, and p=0,000 for sample 3). So, it can be assumed that Model 2 is valid and has a relative good fit.

The sixth hypothesis suggests that relative large Dutch performing arts venues have a lower cultural value / subsidy ratio. The independent variable size of the organization does not have a significant effect on the cultural value / subsidy ratio (p>0,100). Besides, the number of buildings, the number of halls, and the number of seats in Dutch performing arts venues also give an indication on the size of the performing arts venue. The number of buildings does not significantly affect the cultural value / subsidy ratio (p>0,100). The number of halls has a significant negative effect on the cultural value / subsidy ratio (β=-0,473; p=0,004 for sample 1, β=-0,406; p=0,087 for sample 2, and β=-0,4036; p=0,001 for sample 3), which suggests that performing arts venues with relative more halls have a lower cultural value / subsidy ratio. The number of seats has a significant positive effect on the cultural value / subsidy ratio (β=0,001; p=0,000 for sample 1, β=0,001; p=0,001 for sample 2, and β=0,001; p=0,000 for sample 3), which suggests that performing arts venues that have relative more seats have a relative higher cultural value / subsidy ratio. Since, the number of halls shows a negative effect, and the numbers of seats show a positive effect, the results are contradictory. Therefore, the results of the effect of size of the performing arts venue on the cultural value / subsidy ratio remain inconclusive, since there is unsufficient evidence to accept the sixth hypothesis.

The seventh hypothesis suggests that Dutch performing arts venues, which are located in a relative larger city, have a higher cultural value / subsidy ratio. This significant positive effect is shown in all three samples (β=0,000; p=0,004 for sample 1, β=0,000; p=0,017 for sample 2, and β=0,000; p=0,000 for sample 3). As a consequence, the seventh hypothesis is accepted, and it is concluded that performing arts venues, which are located in a relative large city, have a higher cultural value / subsidy ratio.

The eighth hypothesis suggests that Dutch performing arts venues, which have a relative high percentage of sponsor income, have a higher cultural value / subsidy ratio. The results of the multiple linear regression analysis show that the percentage of sponsor income does not significantly affect the cultural value / subsidy ratio of the performing arts venues in all three samples (p>0,100).

Therefore, there is unsufficient evidence to accept the eighth hypothesis. This might be due to the low variance in the percentage of sponsor income, it can be argued that the percentage of sponsor income does not change significantly, and hence does not affect the cultural value / subsidy ratio significantly.

The ninth hypothesis suggests that Dutch performing arts venues, which program relative more non-theatrical events, have a higher cultural value / subsidy ratio. The independent variable number of non-theatrical events has a significant positive effect on the cultural value / subsidy ratio in sample 1 and 3 (β=0,001; p=0,021 for sample 1, and β=0,001; p=0,058 for sample 3). The independent variable visitors of non-theatrical events has a significant negative effect on the cultural value / subsidy ratio in sample 1 and 3 (β=-0,000; p=0,001 for sample ,1 and β=-0,000; p=0,011 for sample 3). Since the number of non-theatrical events has a significant positive effect on the cultural value / subsidy ratio, the ninth hypothesis is accepted, and it is concluded that performing arts venues, which program relative more non-theatrical events, have a higher cultural value / subsidy ratio. The number of visitors which is an indication on the size of the non-theatrical event has a significant negative effect. Therefore, it can be suggested that in order to increase the cultural value / subsidy ratio, the management of Dutch performing arts venues should program relative more non-theatrical events which are relative small.

Table 21

Regression Model 2 – Dependent variable: Cultural value / subsidy ratio

Independent variables	Hypothesis	Sample 1 Coefficient (p-value)	Sample 2 Coefficient (p-value)	Sample 3 Coefficient (p-value)
Size organization	-	-0,049	-0,055	-0,049
		(0,758)	(0,817)	(0,715)
Buildings	-	-0,082	-0,216	-0,168
		(0,757)	(0,522)	(0,412)
Halls	-	-0,473	-0,406	-0,436
		(0,004)	(0,087)	(0,001)
Seats	-	0,001	0,001	0,001
		(0,000)	(0,001)	(0,000)
Size city	+	0,000	0,000	0,000
		(0,004)	(0,017)	(0,000)
Sponsor income	+	-2,124	-1,914	-1,982
		(0,631)	(0,741)	(0,570)
Number non-theatrical events	+	0,001	0,000	0,001
		(0,021)	(0,720)	(0,058)
Visitors non-theatrical events	+	-0,000	-0,000	-0,000
		(0,001)	(0,640)	(0,011)

Sample 1:

Number of observations: 139 ; R^2: 0,336 ; P-value ANOVA: 0,000

Sample 2:

Number of observations: 108; R^2: 0,205 ; P-value ANOVA: 0,003

Sample 3:

Number of observations: 247 ; R^2: 0,263 ; P-value ANOVA: 0,000

5.3. Analysis of the lowest and highest cultural value / subsidy ratio

In this part, the performing arts venues with the highest cultural value / subsidy ratio are compared to the performing arts venues with the lowest cultural value / subsidy ratio. Since the size of the organization is the only variable which is normally distributed, a t-test is executed for this variable in order to test whether there is a significant difference in the size of the organization between the performing arts venue with the highest and the lowest cultural value / subsidy ratio. The other variables are not normally distributed, and hence several Mann-Whitney U tests are executed.

Table 22 shows the means of the variables of Model 2. Performing arts venues with the lowest cultural value / subsidy ratio have a significant smaller size of the organization (mean= 2,46) in comparison to performing arts venues with the highest cultural value / subsidy ratio (mean=3,51). Performing arts venues with the lowest cultural value / subsidy ratio have a significant lower number of halls (mean=1,56) compared to performing arts venues with the highest cultural value / subsidy ratio (mean=2,30). This result is not aligned with the result of the regression analysis, which shows that the number of halls has a negative effect on the cultural value / subsidy ratio. The average total number of seats of performing arts venues with the lowest cultural value / subsidy ratio is 807, and the average total number of seats of performing arts venues with the highest cultural value / subsidy ratio is 1314. The average number of citizens in the city of performing arts venue with the lowest cultural value / subsidy ratio is 107.706 citizens, and the average number of citizens in the city of performing arts venue with the highest cultural value / subsidy ratio is 239.513 citizens. Performing arts venues with the lowest cultural value / subsidy ratio program on average 24 non-theatrical events, and performing arts venues with the highest cultural value / subsidy ratio program on average 222 non-theatrical events per year. Performing arts venues with the lowest cultural value / subsidy ratio attract on average 9923 visitors of non-theatrical events, and performing arts venues with the highest cultural value / subsidy ratio program attract on average 20.472 visitors of non-theatrical events per year. This result is not aligned with the result of the regression analysis, which shows that the number of visitors of non-theatrical events has a significant negative effect on the cultural value / subsidy ratio.

Table 22

T-test & Mann-Whitney U tests - Variables Model 2

	Low	High	P-value
Cultural value / subsidy ratio	0,07	2,38	(0,000)
Size organization	2,46	3,51	(0,023)
Buildings	1,22	1,30	(0,421)
Halls	1,56	2,30	(0,097)
Seats	807	1314	(0,220)
Size city	107706	239513	(0,364)
Sponsor income	0,02	0,01	(0,757)
Number non-theatrical events	24	222	(0,006)
Visitors non-theatrical events	9923	20472	(0,031)

Table 23 provides the averages of some general index numbers of the performing arts venues. Performing arts venues with the lowest cultural value / subsidy ratio program on average 135 different performances, this is significant less than performing arts venues with the highest cultural value / subsidy ratio, which program on average 250 different performances. The total number of performances also differs significantly between the performing arts venues with the lowest cultural value / subsidy ratio (mean=166) and performing arts venues with the highest cultural value / subsidy ratio (mean=343). Besides, performing arts venues with the lowest cultural value / subsidy ratio have significant less visitors per year (mean=56.989) than performing arts venues with the highest cultural value / subsidy ratio (mean=117.217). The average total income of performing arts venues with a lowest cultural value / subsidy ratio is €3.209.675, and the average total income of performing arts venues with the highest cultural value / subsidy ratio is €6.307.629. Performing arts venues with the lowest cultural value / subsidy ratio spend on average €3.172.726, and performing arts venues with the highest cultural value / subsidy ratio spend on average €6.261.867, which are also significant differences.

Table 23

Mann-Whitney U tests - General index numbers

	Low	High	P-value
Average number of seats	497	550	(0,754)
Total program	135	250	(0,019)
Total performances	166	343	(0,008)
Total visitors	56989	117271	(0,049)
Performance / program	1,18	1,39	(0,131)
Total income	3209675	6307629	(0,096)
Total expenditures	3172726	6261867	(0,096)

Table 24 provides the averages of some index numbers per performance of the performing arts venues. Only the index number other income per performance shows a significant difference between performing arts venues with the lowest and highest cultural value / subsidy ratio (p=0,082). All other index numbers per performance show no significant differences between performing arts venues with the lowest and highest cultural value / subsidy ratio (p>0,100). Performing arts venues with the lowest cultural value / subsidy ratio have on average 258 visitors per performance. Their average total income is €14.710 per performance, which includes €4.306 per performance from box office revenues, €7.325 per performance from subsidies, and €3.078 per performance from other income, which includes advertisement income, rental income, etcetera. Performing arts venues with the highest subsidy dependence have on average 313 visitors per performance. Their average total income is €16.660 per performance, which includes €4.779 per performance from box office revenues, €5.840 per performance from subsidies, and €6.040 per performance from other income.

Table 24

Mann-Whitney U tests - Index numbers per performance

	Low	High	P-value
Total visitors per performance	258	313	(0,364)
Total expenditure per performance	14642	16473	(0,545)
Total income per performance	14710	16660	(0,597)
Box office revenues per performance	4306	4779	(0,650)
Subsidy per performance	7325	5840	(0,496)
Other income per performance	3078	6040	(0,082)

Table 25 provides the averages of some index numbers per visitor of the performing arts venues. All index numbers per visitor show no significant differences between performing arts venues with the lowest and highest cultural value / subsidy ratio (p>0,100). Performing arts venues with the lowest cultural value / subsidy ratio spend on average €62 per visitor, receive €61 per visitor in total, and receive €15 per visitor from box office revenues. Performing arts venues with the highest cultural value / subsidy ratio spend on average €52 per visitor, receive in total €53 per visitor, and receive €14 per visitor from box office revenues.

Table 25

Mann-Whitney U tests - index numbers per visitor

	Low	High	P-value
Total income per visitor	61	53	(0,821)
Total expenditure per visitor	62	52	(0,880)
Box office revenues per visitor	15	14	(1,000)

6. Conclusion

The study focusses on the subsidy dependence of performing arts venues in The Netherlands. The effects of various independent variables on the subsidy dependence of Dutch performing arts venues are determined, and the ten Dutch performing arts venues with the lowest and highest subsidy dependence are analyzed in detail. Based on the results of Table 10, two conclusions about the subsidy dependence of Dutch performing arts venues can be drawn. Firstly, the size of the performing arts organization positively affects the subsidy dependence of the performing arts venues. This is consistent with the results that performing arts venues with more halls, and performing arts venues with more seats are more dependent on subsidy. Therefore, it can be concluded that large performing arts venues in The Netherlands are more dependent on subsidy. Secondly, the percentage of subsidized performances in a performing arts venue positively affects the subsidy dependence. Performing arts venues, which program relative more subsidized performances, are more dependent on subsidy. Furthermore, no evidence is found to support the other hypotheses. The results do not show a significant effect of the number of citizens, the percentage of sponsored income, and the programming of non-theatrical events on the subsidy dependence of Dutch performing arts venues.

In addition, the study focusses on the cultural value / subsidy ratio of performing arts venues in The Netherlands. The effects of various independent variables on the cultural value / subsidy ratio of Dutch performing arts venues are determined, and the ten Dutch performing arts venues with the lowest and highest cultural value / subsidy ratio are analyzed in detail. Based on the results, two conclusions can be drawn about the cultural value / subsidy ratio of Dutch performing arts venues. Firstly, the numbers of citizens in the city, where the performing arts venue is located, positively affect the cultural value / subsidy ratio. Performing arts venues which are located in relative larger cities have a significant higher cultural value / subsidy ratio. Secondly, the programming of non-theatrical event positively affects the cultural value / subsidy ratio of performing arts venues. The number of visitors of non-theatrical events negatively affects the cultural value / subsidy ratio. Performing arts venues, which program relative more and small non-theatrical events, have a significant higher cultural value / subsidy ratio. Besides, no evidence is found to support the other hypotheses. The results of the effect of size of the performing arts venue on the cultural value / subsidy ratio remain inconclusive. The size of the performing arts organization and the number of buildings does not significantly affect the cultural value / subsidy ratio of Dutch performing arts venues. In addition, on the one side, the number of halls has a significant negative effect on the cultural value / subsidy ratio, on the other side, the number of seats has a significant positive effect on the cultural value / subsidy ratio. Therefore, no clear conclusion about the effect of size of the

performing arts venue on the cultural value / subsidy ratio can be drawn. Furthermore, the results do not show a significant effect of the percentage of sponsored income on cultural value / subsidy ratio of Dutch performing arts venues.

This research complements previous research on the effects on subsidy dependence and the cultural value / subsidy ratio by the following two aspects. The first scientific contribution factor is that previous research about subsidy dependence used data before the financial crisis, and the received amounts of municipal subsidy by performing arts venues have changed a lot because of the financial crisis. This study provides more recent results about subsidy dependence of Dutch performing arts venues. The second scientific factor to consider is that the cultural value / subsidy ratio is a new measure in the performing arts realm, which can be further developed in the future.

Furthermore, this research provides various managerial contributions to the management of Dutch performing arts venues. The results of this research indicate that the programming of more and relative small non-theatrical events does not significantly affect the subsidy dependence, but it does have a positive effect on the cultural value / subsidy ratio. This suggests that the programming of more and relative small non-theatrical events has a positive effect on the quality of the programming. The results also show that performing arts venues, which program 267 performances per year, are the least dependent on subsidy. These results can be used by the management of Dutch performing arts venues. In addition, this research provides several managerial contributions to Dutch policy makers. The results of this study show that a large performing arts venue is more dependent on subsidy, and hence that economies of scale do not occur. Performing arts venues, which are the least dependent on subsidy, have 1103 seats. Performing arts venues, which are located in a relative large city, have a higher cultural value / subsidy ratio. These results can be used by Dutch policy makers when new performing arts venues need to be built.

In reflection, some constraints have to be taken into account. Only the direct municipal subsidies are implemented in the measurement of the subsidy dependence and the cultural value / subsidy ratio. Since the Dutch government also provides indirect subsidies to the performing arts venues, the amount of received indirect subsidies would affect the subsidy dependence and the cultural value / subsidy ratio of Dutch performing arts venues. In 2012 the Dutch municipalities provided €298.000.000 of direct subsidies to the performing arts venues (Cebeon, 2013). The Dutch performing arts venues received several indirect subsidies including, €136.360.000 through the basicinfrastructure (Raad voor Cultuur, 2012), €24.500.000 by the Fund Performing Arts (Ministerie van Onderwijs Cultuur en Wetenschap, 2012), and €26.000.000 by the provinces (Cebeon, 2013). The

additional indirect subsidies might have a significant effect on the results, but are not implemented in the measurement due to time and data limitations. In addition, not all data of the performing arts venues were provided by the database of the Theatre Analyses System, which may affect the results of this study. Besides, the sample consists of only the year 2010 and 2012. The results may change if data of more years are included in the sample. Furthermore, since the sample only consists of Dutch performing arts venues, and the manner of providing subsidy to the performing arts venues differs between countries, the results are not generalizable for other countries.

Future research could also include the indirect subsidies, which are provided to the performing arts venues. This would give a wider overview of the subsidy dependence and the cultural value / subsidy ratio. In addition, a sample which includes more years would be interesting for future research, since the cultural value of the performing arts receives recently more attention by Dutch policy makers. Moreover, since the results about the effect of size of the performing arts venue on the cultural value / subsidy ratio is still inconclusive, future research should try to find the relationship between these two variables. These would be interesting avenues for future research.

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Appendix A

Additional tables

Table A1

Descriptive statistics

	Sample 3 N=247				
	Mean	Median	Stand. Dev.	Min.	Max.
Subsidy dependence	25,51	23,68	13,78	6,44	81,43
Size organization	2,92	2,90	0,83	-0,26	5,91
Buildings	1,2	1,0	0,5	1,0	3,0
Halls	1,9	2,0	0,9	1,0	5,0
Seats	934	739	684	118	4181
Size city	185766	76760	234864	11371	794694
Sponsor income	0,01	0,00	0,02	0,00	0,13
Number non-theatrical events	159	59	385	0	4000
Visitors non-theatrical events	177790	9550	25798	0	165000
Subsidized program	0,11	0,06	0,15	0,00	1,00

Table A2

Pearson correlation matrix - sample 3

Variables	Log. subsidy dependence	Size organization	Buildings	Halls	Seats	Size city	Sponsor income	Number non-theatrical events	Visitors non-theatrical events	Subsidized program
Log. subsidy dependence										
Size organization	0,140*									
Buildings	-0,049	-0,018								
Halls	0,166*	0,475**	0,464**							
Seats	-0,122	0,614**	0,361**	0,717**						
Size city	0,230**	0,424**	-0,052	0,178**	0,198**					
Sponsor income	-0,066	-0,083	-0,018	-0,139*	-0,098	-0,113				
Number non-theatrical events	0,073	0,023	0,126	0,203**	0,057	-0,091	-0,087			
Visitors non-theatrical events	0,051	0,247**	0,146*	0,455**	0,425**	0,020	-0,096	0,715**		
Subsidized program	0,254**	0,310**	0,036	0,238**	0,190**	0,346**	-0,135*	0,006	0,013	

* Significant at 5%, 2 tail

** Significant at 1%, 2 tail

Table A3

Spearman correlation matrix - sample 3

Variables	Cultural value / subsidy ratio	Size organization	Buildings	Halls	Seats	Size city	Sponsor income	Number non-theatrical events	Visitors non-theatrical events
Cultural value / subsidy ratio									
Size organization	0,297**								
Buildings	0,057	0,149*							
Halls	0,105	0,567**	0,418**						
Seats	0,265**	0,721**	0,315**	0,661**					
Size city	0,241**	0,569**	0,155*	0,392**	0,330**				
Sponsor income	-0,039	-0,056	0,013	-0,089	-0,037	-0,194**			
Number non-theatrical events	0,033	0,202**	0,217**	0,436**	0,239**	-0,055	-0,044		
Visitors non-theatrical events	0,127*	0,175**	-0,005	0,021	0,298**	-0,152*	0,103	0,079	

* Significant at 5%, 2 tail

** Significant at 1%, 2 tail

Appendix B

SPSS output tests of normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Subsidy dependence	,327	247	,000	,304	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Log. subsidy dependence	,060	247	,051	,987	237	,048

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Cultural value / subsidy ratio	,221	247	,000	,604	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
(Cultural value / subsidy ratio)^2	,401	247	,000	,226	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Log. cultural value / subsidy ratio	,083	247	,000	,935	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Size organizaiton	,045	247	,200*	,984	247	,006

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Buildings	,484	243	,000	,507	243	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Halls	,280	243	,000	,803	243	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Seats	,151	243	,000	,829	243	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Size city	,294	246	,000	,654	246	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
% Sponsor income	,290	247	,000	,599	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NT events	,340	246	,000	,378	246	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Visitor NT events	,245	245	,000	,652	245	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
% Subsidized performances	,233	247	,000	,728	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Average seat	,122	136	,000	,839	136	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total program	,129	247	,000	,847	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total performances	,131	247	,000	,874	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total visitor	,195	247	,000	,648	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Performance per program	,376	247	,000	,245	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total income	,197	247	,000	,742	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Total expenditure	,190	247	,000	,746	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Visitor per performance	,137	247	,000	,826	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Total expenditure per performane	,233	247	,000	,441	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Total income per performance	,236	247	,000	,426	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Box office revenues per performance	,126	247	,000	,691	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Subsidy per performance	,264	247	,000	,336	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Other income per performance	,245	247	,000	,505	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Total income per visitor	,327	247	,000	,269	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Total expenditure per visitor	,329	247	,000	,275	247	,000

a. Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Box office revenues per visitor	,159	247	,000	,646	247	,000

a. Lilliefors Significance Correction

SPSS output t-tests

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Log_subsidy dependence	Equal variances assumed	,695	,405	-,754	235	,452	-,02672	,03545	-,09655	,04312
	Equal variances not assumed			-,760	227,990	,448	-,02672	,03513	-,09594	,04251

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Cultural value / subsidy ratio	Equal variances assumed	,093	,761	-,533	245	,595	-,090663159	,17021512	-,42593485	,24460853
	Equal variances not assumed			-,529	223,753	,597	-,090663159	,17139632	-,42842064	,247094328

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Size organization	Equal variances assumed	1,178	,292	1,896	18	,074	,96347	,50809	-,10398	2,03093
	Equal variances not assumed			1,896	13,289	,080	,96347	,50809	-,13177	2,05871

Sample: performing arts venues with the highest/lowest subsidy dependence

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Size organization	Equal variances assumed	1,508	,235	-2,482	18	,023	-1,04525	,42107	-1,92989	-,16060
	Equal variances not assumed			-2,482	17,255	,024	-1,04525	,42107	-1,93264	-,15786

Sample: performing arts venues with the highest/lowest cultural value / subsidy ratio