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**The Impact of Central Government Subsidy on Program Innovation**



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## Abstract

The influence of government subsidy on cultural world is a standing concern in the study of cultural economics. This research makes effort in investigating the impact of government subsidy on theater groups in terms of repertoire production. In particular, the aspect of innovation is the focus.

The analysis is concentrated on theater groups in the three major cities in the Netherlands: Amsterdam, Rotterdam and The Hague. The exemplar role of the three cities in the country provides a motive to investigate the difference between them. Thus whether differences exist in the degree of innovativeness between Amsterdam and the other two cities is looked into.

To conduct the research, I firstly construct a theoretical framework on cultural goods as well as innovation. Here concepts such as cultural values, market failure, crowd theory, as well as definition and measurement of innovation are discussed. Conventionality index and the number of new plays are calculated and later used as measurement of innovation.

The conduction of this research is based on secondary data from various governmental sources, including the cultuurnota, statistic bureau documents, etc. The amount of government subsidy from the year 2001-2008 for the theater groups are collected as independent factor, which is anticipated to have an impact on the conventionality index and the number of new plays of the theater groups. Stata, a popular statistical program is used here for the analysis. In total, I am able to include 23 theater groups as candidates. With the data of government subsidies in 8 years, I generate 184 observations for analysis. Through this research, I wish to contribute to the continuous academic discussion on the impact of government subsidy in cultural sector. In addition, I also hope this research will provide enlightenment for theater production as well as policy making.

Keywords: culture goods, theater production, theater group, government subsidy, innovation, creativity, market failure, conventionality index

## 1. Introduction

William Shakespeare in his famous play *As You Like it*<sup>1</sup> compared the whole world for a stage by saying:

*All the world's a stage,  
And all the men and women merely players;  
They have their exits and their entrances,  
And one man in his time plays many parts,  
His acts being seven ages*

A comparison like this depicts to us the meaning of life, not only accurately but also artistically that the world is a stage, on which each one of us plays a role for the whole performance which is called life. It is indeed interesting to learn life wisdoms through a stage performance, which is long acknowledged as one form of high arts.

The prominent educational meaning of arts explains to an extent why cultural organizations are important to any country. Indeed, arts, or broadly speaking, cultural goods, are long-timely argued to embody specific characteristics such as merit goods (Frey 2001, Riccardo & Tryphon 2004), public goods (Frey 2004, Klamer 2002), experience goods (Towse 2003, Caves, etc) that make them special. As a result, most European countries pay great attention in promoting cultural sector, including the Netherlands. The Netherlands is a country of its famous arts sector. The tolerant attitude and free flow of thoughts inhabit famous artists one generation after another. This is particularly true in the visual arts sector when we think about well-known painters such as Rembrandt. As to the performing arts, Dutch is making effort in establishing an artistic country. During the past years, to promote quick and continuous development of art sector is a policy target of the Dutch government (Arts for Life's Sake: Dutch Cultural Policy in Outline, 2007).

It is generally known that one of the obstacles for arts development comes from the finance, as "fixed costs are very high relative to variable costs" (Dick Netzer, 2003:332). Similar to other European countries (excluding UK), a significant part of financial support for arts from the Dutch government comes in the form of granting subsidies. This

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<sup>1</sup> Shakespeare, *As You Like it*, Act 2, scene 7, 139-143

is in contrary to the situation in countries like the United States, where market mechanism takes the lead. As Klamer (1998:2) indicated that “the structure of financial arrangements in Continental Europe are the inverse of that in the USA; the share of market and gift in the support for the arts in the US equals the share of government support in Continental Europe.” As a result, Klamer (1998:6) urges cultural organizations to find more support in the 3<sup>rd</sup> sphere, a concept he proposed which refers to a sphere that is beyond the involvement of government and market, one that is of “informal associations, relationships of reciprocity, gifts and donations.”

Whether the European support system for arts is efficient is a standing discussion point. It is this question in mind, together with the intrinsic interest for performing arts sector that induce me to devote this master research to investigate the impact of government funding on cultural organizations. Here government funding refers to subsidies granted directly from central government. Furthermore, to make the research feasible in practice, I concentrate on one particular type of cultural organizations: theatre groups. What I am particularly interested in finding out is how the production of theatre repertoires is linked with the funding and whether there exist possible causal relations between the two. This is because that, repertoire production is of central importance of a theatre group’s business, and it is indeed meaningful to look into the impact of government subsidy in this respect.

Governmental funding is used in every aspect of theatre running, among which financial means on program production is an important expenditure. What I intend to look into is the creative side of program production. This is because that, innovation is a crucial feature of cultural production. As a result, the Dutch government values creativity and innovation in cultural field very much. It is clearly indicated on the Ministry’s website when theatre groups applying for subsidy that,

*“een onafhankelijke commissie, bestaande uit personen met kennis van innovatie uit verschillende maatschappelijke sectoren, zal de aanvragen beoordelen en de minister adviseren”*<sup>2</sup>

This indicates that a special team formed with expert people is going to check the

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<sup>2</sup> MINOCW: <http://www.cultuursubsidie.nl/nieuws>

innovativeness of each theatre group. The result of this will be taken into consideration by the ministry. Given the significance of innovation, how the degree of creativeness is influenced through the change of subsidy amount is under investigation.

Therefore, the first central research question of my research is as follows:

Does government subsidy positively influence program innovation in theatre groups?

My hypothesis based on this research question is:

Government subsidy is proved to be positively influence program innovation among the chosen theatre groups in the Netherlands.

Moreover, I intend to further narrow my research on the three big cities in the Netherlands: Amsterdam, Rotterdam and The Hague. The fact that historically these three cities were the first group that began to be subsidized<sup>3</sup> by the central government makes the comparison among them rather interesting. The theatre groups in Amsterdam, Rotterdam and The Hague will be the target group.

Thus, the second research question of the research is:

Do theatre groups in Amsterdam demonstrate more innovativeness than theatre groups in the other two cities?

My hypothesis based on this research question is:

Under the given subsidy, theatre groups in Amsterdam show a higher degree of innovativeness in terms of repertoire production when compared with those located in Rotterdam and The Hague.

To conduct this research, extensive literatures are referred to in order to establish a theoretical framework for the research. Various concepts such as cultural values, innovations etc need to be addressed first. I approach each part in the following outline:

Chapter two and three constitute the theoretical framework on cultural production and innovation. In chapter two, the characteristics of cultural goods, the cultural objectives, etc are discussed. The following questions are addressed intensively:

- What are the characteristics of cultural goods?
- Are cultural goods different from other economic goods?
- What are the cultural objectives of cultural organizations?
- What is market failure?

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<sup>3</sup> See Cultural Policy in the Netherlands: 2006

- How is market failure used in favor of government subsidy?
- What is the funding tradition in Dutch society?
- What are the aims in forming cultural policy?
- Why is Amsterdam also the capital of performing arts in the Netherlands?

As to chapter three, much effort is made to continue the discussion on the definition and measurement of innovation, the concept of which is by far deemed as a rather ambiguous notion. This is understandable given its subjectivity. The essence of the word indicates creating something new, but it is far more than just creating something new. Throsby (2001: 95) described that “creativity is a rational decision process” that implies a changing procedure where choices on production have to be made. Many cultural economists including Bruno Frey (1999), Xavier Castaner & Lorenzo Campos (2002), Michael Rushton (2000), Christian Handke (2006), etc have written on innovation. In chapter three, a detailed discussion on the definition and measurement of innovation will be given. It is also in this chapter, the important measurement of innovation used in this research that are the conventionality index (CI) and the number of new plays are discussed and calculated. The following questions are approached:

- What is innovation in cultural sector?
- What is the distinction between content innovation and technology innovation?
- What are the distinctive roles of arts manager and cultural director?
- How can government subsidy crowd in or crowd out innovation?
- What is conventionality index?
- How to measure innovation?

Chapter four discusses the methodology and data collection process. As mentioned above that the Netherlands is deemed as rich in its cultural activities. In order to make the research doable in practice, choices of theatre groups need to be carefully made. A distinction is drawn between theatre groups and theatres. Theatre groups are those organizations who design and rehearse repertoires, and the latter are the establishment where repertoires are put into live performances.

It can be seen that data collection on theatre group production is of crucial importance

for this research. I base all my data from authorial organizations such as VNT (de Vereniging van Nederlandse Theatergezelschappen), the Theatre Instituut Nederland (TIN) as well as MOCW (Ministerie van Onderwijs, Cultuur en Wetenschap) documents. They are the most reliable and complete sources, for my data collection. There are in all 36 professional theatre groups from Amsterdam registered under VNT, a cultural institution that is responsible to keep track of theatre activities, now part of NAPK<sup>4</sup> (Nederlandse Associatie voor Podiumkunsten). The registered number for Rotterdam and The Hague are 6 and 3 respectively. It can be seen that Amsterdam, being the capital of the country, seems to attract more attention with regard to repertoire supply and demand. Therefore, the total subsidy from the central government is higher than in Amsterdam area than the city of Rotterdam and The Hague.

Furthermore, a time period has to be fixed for the research, as it is practically unmanageable to include all years from the time theater groups are subsidized and theatrically meaningless to generalize a pattern that might be bias for current use. Based on this, I aim at focusing the research on years 2001 to 2008, which compasses two rounds (2001-2004 & 2005-2008) of subsidy situation in the Netherlands, as theater groups are subsidized on a basis of four years. These two rounds are the most recent and also are the beginning of 21<sup>st</sup> century. The purpose of doing so is to see to what extent are theater groups influenced by government in terms of repertoire design in the beginning of the new century, so that the most recent result can give reflection on future policy making.

The result analysis will be given in chapter five. Stata, the popular statistical program is used in assisting the statistical calculation. The result of OLS regression, fixed-effect and random-effect models will also be discussed in this chapter. Here, apart from the main dependent variables and the independent variable, other control variables are also added in order to investigate a causal impact for answering the research question instead of a simple correlation. A causal relation explains a cause for certain result and it is the goal in this research to find the real causal impact. The control variables include location (L), education level (E), Income level (I), size (S), donation & sponsorship (D) as well as reputation (R). They represent other possible factors that can to certain extent affect repertoire programming, apart from the amount of subsidy, and therefore should be

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<sup>4</sup> NAPK: <http://www.napk.nl/>

controlled in conducting the research. The meaning of the control variables and their data collection will be further explained in chapter 4 and analyzed in chapter 5.

Nevertheless, a perfect research is highly desirable but very difficult to achieve, though many efforts are made for this aim. One potential bias can be caused by incomplete data as due to historical or recording reasons, the names of playwrights are missing for certain performances in several theater groups. Efforts are made to reduce the missing data to minimum. Another limitation of this research is the scope of theater groups included. Ideally for the impact of government subsidy on repertoire programming in a certain country, it will be thorough to include all theater groups that are publicly subsidized in the country. Nevertheless, due to the high vibrant cultural atmosphere in the Netherlands, there are too many theater groups fall in this category. Choices are made in the three big cities as they are deemed as most representative, even though several theater groups in other cities are also interesting to look into.

Through the empirical research, a rather clear and accurate picture can be painted to show whether indeed subsidy granted will encourage constant creation or pose a hinder for innovation due to money concerns. The ultimate purpose of the paper is to provide enlightenment in future cultural policy making, particularly the subsidy granting policy for theater groups. This will be discussed in the conclusion chapter 6. Hopefully the results should be satisfactory enough to assist politicians in doing so.

## 2. Government Subsidy for Cultural Organizations

As the chapter title shows, I intend to focus the discussion on cultural goods and cultural organizations in this section. In order to give a complete overview, I first discuss the specialness of cultural goods, where the characteristics are looked into. Then I view the issue from the level of cultural organizations, which are dedicated in producing these cultural goods. Here the non-profit form of cultural organizations is paid special attention to. The non-profit form of running an organization makes the external funding necessary, based on which I bring in the discussion on government subsidy and together the “market failure” argument. Lastly, I proceed with an historical overlook on Dutch cultural policy.

### 2.1. Characteristics of Cultural Goods

The increasingly important role in stimulating economy that cultural sectors play can be recognized in various economic reports. We see more and more entry of cultural sectors in economic report of a nation or region, and even on an international basis. According to the UN Creative Report 2008 (2008:106) that,

*“Over the period 1996-2005, the creative industries gained shares in global markets, growing at an annual rate of 8.7 percent for the period 2000-2005. This upward trend is likely to continue throughout the decade, given the positive prospects for global demand.... Exports of creative services increased by 8.8 per cent annually, rising from \$38.2 billion in 1996 to \$89 billion in 2005 although this increase is also indicative of the growing number of reporting countries, as explained earlier.”<sup>5</sup>*

The fast growth and development of cultural industries proves that cultural goods can generate economic outcome through trades in the sphere of market, just as other manufacturing goods. In this sense, cultural goods share similarities with other goods in that, “all their production utilizes resources of land, labor and capital and other inputs, particularly human ingenuity”, as explained by Towse (2003:2). This rapid growth is not only limited to popular cultural forms; with performing arts as a crucial part, classical art

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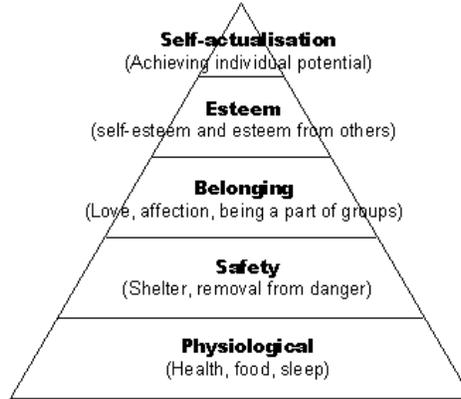
<sup>5</sup> UN Creative Report, 2008:106

forms are also developing significantly. Cultural organizations, among them theater groups are one of the highly-cited examples of “companies” that “selling out” performances to make a profit.

This seemingly good operation of the market mechanism in art world challenges the role of government in regulating the art sector. In particular, when the issue comes to whether art organizations need to be publicly funded, the discussion becomes fierce. On one hand, government intervenes with cultural industries by setting up rules and regulations to ensure equal competition; on the other hand, it provides financial support in the form of subsidy or fund for cultural organizations or projects, which “isolates” cultural industries from other economic sectors.

Why cultural sectors are different from other sectors then? What are the common characteristics of cultural goods? These are the questions that need to be looked into first. The UN Creative Report (2008:118) indicated that, “performing arts are a special case since their products are expressed only as an intangible service”. The specialness of performing arts represents a common character of most cultural products, which lies in the fact that rather than concrete consuming goods, art products usually are in the form of “intangible service”. Thus, the benefit of consumption is difficult to be measured in numbers.

It often struck me when I realize how much we can be inspired by arts or cultural goods in general. In a way, cultural goods “exceed” manufacturing products in its way of conveying the meanings and enlightenment to people, as I believe they fundamentally serve for different human needs. As illustrated by Maslow (1943) in his famous “pyramid of needs” that, there are five types of needs of human beings that are lapped up in a pyramid shape with the basic needs at the bottom:



The hierarchy of needs<sup>6</sup> showed that normal commodities such as food, clothes, house etc. are needed to fulfil the very basic physiological needs and safety needs which are the basis of all other desires in life, as it is related to the survival of human beings. When the basic needs are met, human beings are in demand of higher level of fulfilment where the consumption of cultural goods plays a crucial part. For example, we acquire knowledge from books, reveal emotions through performances and share feelings in heritages. So what are the basic traits of cultural goods?

### *2.1.1 Merit Goods Character*

This fulfillment of higher level of needs makes them precious and valuable, which gives credit to individual or public support of cultural goods. Cultural goods are traditionally acknowledged as “merit goods”, a concept first introduced by Musgrave (1957, 1958). This concept, though various interpretations are possible, entails broadly that “a setting where individuals, as members of the community, accept certain values or preferences” (Musgrave, 1987: 452).

The merit goods character implies that maximised consumption of cultural goods is desirable, as cultural goods are “merit” in essence. This can be sensed through the argument of Musgrave (1987: 453), as he wrote that, “concern for maintenance of historical sites, respect for national holidays, regard for environment or for learning and the arts are cases in point.”

The “merit” nature of cultural goods is also reflected in the intrinsic values possessed by

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<sup>6</sup> Maslow, pyramid of needs  
[http://www.apppsychology.com/Book/Humanistic/humanistic\\_school.htm](http://www.apppsychology.com/Book/Humanistic/humanistic_school.htm)

cultural goods. Apart from the economic value, David Throsby (2001:26-29) in his book *Economics and Culture* characterized the intrinsic cultural values of art goods into six categories that are aesthetic value, spiritual value, social value, historical value, symbolic value and authenticity value. These values are shared among cultural goods, and are highly applicable to the performing arts. The following table gives a general overview on how the six cultural values are reflected in performing arts sector:

**Table 2.1 Cultural Value of Performing Arts**

Cultural values	When expressed in performing arts
Aesthetic value	It is reflected in the smooth plots and scenarios that were finely displayed in the play. To watch the show is an enjoyment to audience, as the work conveys a sense of beauty in the work itself.
Spiritual value	Audiences can be inspired by a play. It conveys belief, love, and conviction to people.
Social value	Attending live performances is a social activity and individuals are connected together through this. The audience benefit from it as they feel belonging to a certain social group. This social group represents taste, class, hierarchy, etc.
Historical value	Performing arts is part of cultural heritage that is enjoyed by all. Through this asset, people of today can learn about past. Thus, It is worth to be preserved so that we can pass it on to future generations.
Symbolic value	A successful play can generate a sense of acknowledgment among others, and thus becomes a symbol. This is often related to a country, particularly when the work becomes national heritage. For example, Shakespeare’s plays are symbolic for the rich culture of English people.
Authenticity value	Stage performance is real, innovative and unique. The idea is original, the content is creative and the performance is brand new.

The above mentioned cultural values are immense. Thus, when used for justifying

government subsidy, “cultural values play a role in arguments in support of the subsidization of the arts, as when it is argued that the arts improve the integration of minorities, have educational values and are good for personal development, community and the like”, as Klamer (2003:465) explained. In the case of performing arts, to seek for external financial means is not only to fill up deficit, more importantly, it would be a loss to the entire mankind if the classical Shakespeare plays extinct from the stage due to lack of financial sources, as it is a cultural heritage that can be passed on through generations.

### *2.1.2 Public Goods Character*

Another significant characteristic of cultural goods is the public goods character, a concept which indicates that the consumption of cultural goods is non-rival and non-exclusive. Non-exclusive trait means that “nobody, including those not paying, can be excluded from enjoying it”; similarly, non-rival quality implies that “the consumption of one person does not reduce the consumption of other persons” (Frey, 2003: 391). For example, the music from a radio can be enjoyed by everybody without them being charged a fee, and one cannot exclude others from listening to it.

The public goods indicates that markets cannot fully take into account through prices, which makes the most measurement of values incomplete (Towse, 2003:2). A direct result of public goods is the presence of free-riders, who “can enjoy the cultural goods without paying any price for it” (Cuccia, 2003:119). The benefit is called “positive externalities”, which means, as the term conveys, that the cultural goods spills over good and positive effects to outsiders who are in principle not entitled for.

Due to the external effects, the value is always understated in the actual economic revenue. Thus, the suppliers are incompletely compensated for their efforts. This can result in a cultural supply that is “lower than socially optimal” (Frey, 2003: 391), as the incentive to stimulate supply is limited.

Cultural goods present different degrees of “non-rivalry” and “non-excludability” in consumption (Cuccia, 2003:119). Examples such as the appearance of a historical museum and the beautiful overview of a city are highly non-rival and non-exclusive, as the enjoyment of them are freely and equally for everybody. Whereas, cultural services such as theater performance and visit to museum are less in the degree of “publicness”, as

it is exclusive for those without a ticket, and it is rival as the number of seats are limited.

Depending upon the extent of external benefits, the greater the degree of “publicness”, the more likely it is that the state will intervene in markets either to provide the good directly, to subsidize it, or to control its production or distribution by regulation (Towse, 2003:2).

### *2.1.3 Experience Goods Character*

The 3<sup>rd</sup> trait of cultural goods is the experience goods characteristic. This trait is related to incomplete information problem, also called the asymmetric information problem. From demand side, cultural goods are experience goods (Nelson, 1970: 311), the appreciation of which is not a given. Arts are often said to be a cultivated taste, but “cultivation of taste means that preferences are shaped and changed by experience” (McCain, 2003: 445). This couldn’t be truer in terms of repertoire appreciation. A person enjoys a performance more and more each time he goes to the theater and his knowledge and interest climbs up at the same time.

The “experience goods” quality of performing arts posts both opportunities and challenges for cultural organizations. On one hand, it is easy to create “return customers” whose enjoyments grow each time as he comes more often, thus accumulate a certain percentage of loyal customers; but on the other hand, high culture also easily posts a high entry-level for potential customers who just start the “cultural journey”. Time and financial means need to be invested in order to gain the experiences. For new audiences, “consumers’ tastes are not fully formed and they cannot have full information about cultural goods” (Towse, 2003:2-3). The direct consequence is the possible declining demand.

As tastes are accumulated through repeated exposure, a method to eliminate the information gap and to provide a chance to get to know cultural goods is highly desired. Cultural education can be an efficient way. Educational programs supplied by theaters or even in schools are effective in getting the young generation in the “cultural mood”, which the government also plays a role in stimulating such system.

Therefore, in this respect, government intervention through subsidizing theater groups is a good thing. Very common, the government has requirement for such subsidy. For

example, a young theater group in The Hague called Club Ghazal<sup>7</sup> is under the obligation to sell its educational programs to schools in order to retain the subsidy for next year. However, such requirement sometimes also display itself as a pressure, under which, theaters often have to comprise between performances to the one that sells better, in order to be eligible for subsidy next year.

From above, it can be seen that cultural goods embody “specialness” in that, unlike other economic goods, it is deemed as “merit goods”, which indicates that culture is intrinsically good and encouragement in cultural involvement is desired. The more people involve in culture, the better it is for the individual and society. The positive externalities exerted due to the public goods characteristics gives credit to extra attention, which to an extent justifies external funding, as cultural goods are “under priced”. The experience goods trait makes it clear that early encouragement in the cultural participation is crucial in future cultural consumption, which gives us another reason to separate cultural sector from other economic departments.

## ***2.2 Cultural Objectives of Cultural Organizations***

The above part discusses cultural sectors by analyzing the nature and characteristics of cultural goods; the following part approaches cultural sectors from organizational level and from a broader view that focuses on the enterprises that put creative ideas into final artworks-- cultural organizations.

Being the essential components of cultural industries, cultural organizations “share features of other information goods producers” (Throsby, 2003:172). Given the uniqueness of cultural goods, it can be expected that cultural organizations, dealing with the “special” products, is also different from other types of economic organizations. As David Throsby explained simply that, “after all, if cultural industries or organizations are no different from those in the rest of the economy, why do we need a special field to study them?” Thus, difference does exist and a quick answer is that “their cultural content” that makes them different (Throsby, 2003:172).

To produce quality goods, an attitude of pursuing high quality of cultural content is

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<sup>7</sup>Club Ghazal: <http://www.clubghazal.nl/>

necessary for cultural organizations. But the nature of an organization also tells that the generation of sales is also important and necessary for keeping the organization running. How do cultural organizations balance the two? Or does this mean that a choice has to be made between the quality and sales? The following part solves these question marks one by one.

### *2.2.1 Cultural goal of cultural organizations*

The “marriage” of culture and economics gives the current cultural organizations a possibility to be referred to as cultural enterprises. The term “enterprise” suggests that it is an important organization task for cultural groups to enlarge economic returns, apart from the pursuit of producing cultural products of high quality. Demand, or in simple words, what general public wants to see, is paid more and more attention to. This is to say that cultural organizations do not produce arts only for the sake of arts. In particular, the concept of “entrepreneurship” (Klamer, 2006) is introduced to the field of cultural enterprises. It depicts vividly a “businessman” image who aims at generating more economic revenues while emphasizing on the artistic excellence of the cultural productions from his enterprises.

Nevertheless, the economic pursuit does not always go along with the nature of organizational goal. Often cultural organizations undergo high economic pressure, which makes the continuation of cultural production rather difficult. Arjo Klamer (2006: 10) discussed the objectives of cultural organizations by saying that “the art world is not just a matter of demand and supply meeting, or products for sale, and of inputs that produce an output”, but rather, “the economy is about the realization of values. Economic values stand for the income and other revenues that allow people to realize the important social and cultural values.”

It poses a challenge in the leadership to balance the two set of values within cultural organizations. Apart from the shared entrepreneurial qualities of dreaming about the impossible, being adventurous, taking initiative, being alert, and being creative, Klamer also added two criteria of a good cultural entrepreneur that are 1) artistic content is their passion and commitment; everything else, including the economics, is subsidiary; 2) (cultural entrepreneurs) are persuasive in the sense that they are able to convince good

artists to work with them, bring about interest in the art, get people involved (e.g. volunteers), and are able to generate the necessary funds, including donations and the like.

It can be seen that, under the leadership of a cultural entrepreneur, cultural organizations operate with two sets of teams that focus on creating economic value and cultural value respectively. This, when reflected in daily management of an organization, results in an organizational structure, which in definition refers to “the formal system of working relationships among people and the tasks they must do to meet the defined objectives” (Schermerhorn, 1992:163).

William J. Byrnes (2009:163-167) gives several examples of organizational charts showing the bureaucratic framework commonly applied in cultural organizations. It can be seen that under the leading of board of directors, the division of labors that specialize in artistic production and in daily executives is quite clear in different charts. For example, a theater company can be organized in the following way: the production manager that is responsible for the technical aspects such as lighting, sound, costume scene designs, the artistic director who is in charge of stage, choreographer as well as music, and the administration director who takes care of communications, marketing, ticket sales, etc, are in the equal reporting line and they report directly to managing director. This is in contrast with the situation of a symphony orchestra, where executive director and music director who manage the conductors in an orchestra are in horizontal position, both of whom report directly to the board of directors. Such organizational framework can be found in dance companies as well, where artistic director and general manager are the commonly used title.

Though William J. Byrnes (2009:161) argued that “rigid adherence to the organizational chart must be tempered with a healthy dose of reality”, it’s not difficult to notice that in most cultural organizations, the artistic team and the executive team goes hand in hand, and it is important to achieve a balanced cooperation between the two. As Klamer (2006: 12) believes that for a cultural enterprise, “the economy is about the realization of values”, general director aims to reach the maximal amount of audience, and thus the ideal box office sales, should serves for the purpose to achieve the highest cultural value in the artwork which is the central concern of the artistic manager.

It can be seen that, cultural goal overweighs economic pursuit in a cultural organization.

Nevertheless, the financial pressure still exists. How do arts organizations deal with it then? For this concern, Hansmann (1981) argued that organizations in the performing arts should be established in non-profit form due to the high fixed costs and a relatively small demand.

### *2.2.2 Theater groups as non-profit organizations*

The ultimate goal of realizing cultural values determines that the for-profit form of commercial companies is not the ideal form for cultural organizations to operate. Under the main goal of realizing cultural values, cultural enterprises in a lot of situations are non-profit organizations. Non-profit organizations demonstrate two characteristics that are 1) the managers of the organization do not own the enterprise or have an economic interest that can be sold to other firms or individuals. 2) Any surplus of revenue over expenditure may not be appropriated by the managers of the organization, but must be reinvested in ways that further the stated purposes of the organization (Netzer, 2003:331).

As can be seen from the terms “non-profit” and “for-profit”, the fundamental difference lies in the different attitude toward monetary gains. In addition, the difference also exists in the ways of financing. For-profit companies mainly rely on economic returns of the enterprise, therefore, profit-making is of vital importance for for-profit organizations, and the enterprises have to be market-oriented, focus on consumer need, better their products and services, maintain competitive and compete in the market. This is to certain extent, similar to companies in other economic sector. Whereas for non-profit organizations, profit is used to assist artistic production; therefore, various financial sources are needed.

The non-profit form can be beneficiary for cultural organizations, for it expands the scope of financial sources, and thus reduces the chance of failure. As Throsby (2001,116-118) points out, that if the cultural enterprise requires grants and gifts in addition to income from sale of services in order to survive and generate the public goods that motivate the organizers, the not-for-profit form is the only practicable corporate structure (Netzer, 2003:333). Apart from box office revenues, non-profit organizations are able to apply for government subsidy, attract sponsorship and appeal for donations. Government funding is crucially important for performing arts sectors, in that “Fixed costs are very high relative to variable costs. Thus it may be impossible to fully recoup costs by charges

paid by direct users in most cases” (Hansmann, 1986).

Non-profit cultural organizations have obvious advantage in producing high art, through which the artistic value is conveyed to general public. The mission of spreading cultural value overweighs any kind of pecuniary reward for non-profit organizations. Hansmann (1980) asserted that, the non-profit form is well suited to deal with situations in which consumers are incapable of evaluating the goods delivered or promised.

Thus, the non-profit form of cultural organizations seems to justify external financial resources including government subsidy. Nevertheless, the financial reliance on subsidy also brings a common concern that, non-profit firms sometimes cannot be separated from the states, as “sometimes, ostensibly non-profit firms are very closely connected with and governed by the state and differ little from entities that are formally part of the state” (Netzer, 2003:331). Thus, a crucial question related to this is: what is the result of such government support?

### *2.3 Market Failure and Government Subsidy*

Individual effort and public support for art sector is appealing. Individual support often occur in the form of private donation or sponsorship, and it is out of the passion of individuals, thus has little effect on others or the economy as a whole. In comparison, public support of culture in the form of subsidy, tax deduction, etc often incurs critical debates or discussions, as it directly links to the welfare of the public as a whole.

As discussed above, public funding is especially crucial for art organizations that operate in the non-profit form, which is a quite common form in performing arts sector. A nature of non-profit entitles cultural organizations with the rights to approach external financial resources that could be utilized.

Whether granting subsidy to cultural organizations should be taken for granted or not is an issue. One argument is the “welfare theory”, which “focuses on the question of whether the private market misallocates the resources in the domain of the art” Frey (2003:390). Welfare theory in essence concerns the demand and supply of cultural goods, and is used in favour of government funding as it deems that, the consumption of arts will be optimal only when government makes effort in intervening, thus achieving a “welfare”

status.

The characteristics of cultural goods provide a foundation for welfare argument. The merit goods, public goods as well as experience goods characters all imply that, in a free market environment, the value of cultural goods cannot be fully captured through market mechanism. Merit goods deem that there exist cultural values which cannot be expressed in monetary terms; public goods imply that cultural products exert positive externalities that are not included in the market price, if any is charged; as to the experience goods trait, the imperfect information problem hinders too many potential customers, which may otherwise bring in the deserved economic output, if the problem is dealt with. Therefore, a short conclusion is that, given the nature of cultural goods, the invisible hand of market fails to function properly; simply due to too much non-market benefit cultural goods can bring to people.

This mis-function of the market mechanism is given a term “market failure”. It describes a situation where “too little art is supplied if the markets do not reflect all the preferences of individuals for enjoying art”, as explained by Bruno Frey (2003:390). The reason why market failure would occur, as Mark Blaug (2003:476) explains, is due to “a violation of one or more of the conditions for competitive efficiency”. The violation of competition efficiency due to the public goods character is quite obvious. The unavoidable spillovers or externalities in consumption exists, which can benefit, individuals or firms that are not entitled to as they do not pay for them. These positive externalities cannot be expressed in numerical terms and are not displayed through box office sale, and thus posts a violation for competition.

Apart from this, Blaug (2003: 476) also listed that, “the equality of opportunity”, “the option value” and “the merit goods” perspectives as frequently cited supplement to the market failure argument. The equal opportunity concept argues that the government support should be given to increase people’s cultural experience, so as to make sure cultural goods accessible to the public equally. This is related to the experience goods character. The “option value” indicates that cultural heritages maintain at the express for current generation as well as future generation. Government intervention is needed in order to make this possible.

From the supply side, market failure also asks for government subsidy. The public-

goods characteristic of most cultural goods results in the presence of a lot of free-riders, a situation in which “the suppliers are incompletely compensated for their efforts, and supply is lower than socially optimal” (Frey, 2003:391). Even though the non-rival and non-exclusive aspects of public goods do not apply to cultural productions such as operas and museums, the positive external effects to individuals as well as the society and also the economic impact of such productions is potential though beyond measurement.

Furthermore, the consumption of cultural goods will not be optimal if it is not publically supported due to the “incomplete information” problem. This is due to the fact that to consume cultural goods, a certain level of knowledge is necessary so that we can actually appreciate what we consume. The “acquired taste” (McCain, 2003:445) thus, hinders a certain percentage of the public from enjoying art forms. In this sense, government support of education, particularly the encouragement of culture-related curriculums and activities in schools is desirable.

From the analysis above, we can see that, based on the market failure argument, government subsidy is necessary. Public funding needs to mend the “holes” left out by the invisible hand of market. The subsidy can be used in promoting arts participation, as the spread of information can be more successful and people’s ability to appreciate arts can be more enhanced. At the same time, the number of art production can also increase. The suspended programs can finally be put on stage with sufficient financial means. More expenditure can be used in creating new programs as well. In addition, public funding can also preserve arts. In this sense, the nation is doing good work in taking care of arts with values. This is not only for the arts’ sake, but also for the cultural values that simply cannot be separately from any country, such as national identity, prestige and social cohesion closely identified in artistic products.

Nevertheless, a political decision cannot be easily made on this matter yet. Though from above it can be seen that government support in cultural field is positively appealing, a political decision of granting subsidy to a certain sector cannot be taken too lightly, for granting subsidies involves opportunity cost. This implies that the money can well be used in other sectors that might generate an economic outcome that overtake the benefits of subsidizing cultural sectors.

Just as Frey (2003:395) explained that, “even if market failures have been theoretically

and empirically identified for the arts, they constitute at best a prima facie argument for public support. It must be taken into account that government intervention is also subject to failure.” Indeed, if the market can fail to establish a welfare status, so can the government, for “decision taken in the political process may systematically deviate from the preferences of the population” (Frey, 2003:395).

Similar to the mis-function of the market, the hand of government can make mistake too. It is argued quite extensively that, government subsidy can “crowd-out” the intrinsic motive of a cultural organization. Crowd theory, originally used to explain motivation for behaviour in psychology, is widely used in the government subsidy discussion by cultural economists such as Bruno Frey (1999). Though in theory, the granting of government subsidy is possible to both crowd in and crowd out the motives of cultural organizations, the later is more widely argued. Crowd-in effect indicates that a better outcome is gained under the push of certain incentives, whereas crowd-out indicates that, the intrinsic motives to take a certain action are dis-encouraged by a gesture, though the intention of this gesture is to encourage.

The idea behind crowd out theory is that, the direct funds from government makes non-profit organizations inflexible to changes. In performing arts sector, this inflexibility can be seen from several aspects: firstly, the requirement of the government needs to be taken into consideration during production process. Criteria usually set before the funding that requires the organization to fulfill certain “assignment” (for example, the minimum number of performance, minimum number of audience, programs on certain subject), once the subsidy is granted. These “assignment” could be not in the will of the production team, but still need to be finished. Secondly, when a non-profit organization is entitled for subsidy or donation, to some extent, it is unwilling to invest in innovation, as it is afraid that it will lose the subsidy or donation if the result of creation fails to attract government officials or donors. This is to say that, on one hand, subsidies are granted to relieve the financial pressure carried by most cultural organizations; on the other hand, organizations may be unwilling to innovate its programs, for fear that the subsidy of next year will be lost if the result of creation fails to attract government authorities. In this way, subsidy crowds out the intrinsic motive to make changes. Thirdly, government subsidy may be granted with a political reason. It is acknowledged that “a large proportion of the cultural

institutions had become too dependent on political lobbying, procedures and bureaucracy” (The New Subsidy System for the Arts, 2009:1). This situation is not what is supposed to occur.

The difficulty of government support also lies in the question of how and to what extent. In another words, what kind of cultural policy is “a welfare-enhancing public policy toward arts” (Frey, 2003:389) and how to build it. The welfare theory focuses on the question “why too little art is provided for if it is left to the price system” (Frey, 2003:390), which gives rise to the market failure argument. However, the granting of subsidy in a way can also be a failure, when it crowds out the motives of cultural organizations.

By now, the theoretical debate on this topic is displayed. This provides a base for the hands-on research in Chapter 4 and 5, and also tricks us to investigate more closely on the Dutch cultural policies and funding histories. Section 2.4 below continues the discussion in this respect.

## **2.4 Dutch Cultural Policies**

In this part, an overview on Dutch cultural policy is given. The purpose is to further look into the priorities of Dutch government in supporting cultural sector.

### **2.4.1 Overview of cultural funding**

Looking back at Dutch history, theatres and theater groups were not granted subsidy or any other kind of financial aid from central government until mid 50s last century (Cultural Policy in the Netherlands, 2006:139). The early active performances were limited to morality plays mainly. It was not until the liberation from the war that the Ministry of Education started to jointly subsidize theater groups with local authorities. This rather brief tradition of subsidizing when compared with other art forms makes the case of theater groups especially intriguing to me.

It is stated in *Cultural Policy in the Netherlands (2006:132)* that “Government policy on the performing arts is to guarantee quality performances while ensuring a certain degree

of variety and geographical distribution. Innovation and outreach are also important policy considerations. Central government is responsible for variety and continuity in the performing arts nationwide. ” It can be seen that one of the emphases of government subsidizing performing arts is on encouraging innovation and diversity. A high degree of creation and innovation is also a criterion a theater group has to meet in order to guarantee government funding which is granted on a basis of a four-year term. This period ensures cultural organizations of a steady financial source for four years. Through the years, the number of subsidized companies increased. “In the 1969-70 season, there were nine repertory companies receiving government subsidy, and by 2001-02 the figure had risen to thirty, including theatre groups and production teams - not counting youth theatre, mime and puppet theatre” (Cultural Policy in the Netherlands: 2006:140).

The ministry of Education, Culture and Science (OCW) is the central authority in terms of cultural support in the Netherlands. It is stated in the introduction on its website<sup>8</sup> that “*The Ministry of Education, Culture and Science makes policies, drafts legislation and appropriates public funds on behalf of Dutch citizens. It serves pupils, students and their parents, as well as artists, curators and teachers*”. In particular, the division of Culture under the ministry is directly linked to cultural policy, fund granting, etc.

It is interesting to investigate the change of governmental subsidies. Various documents that have recorded the amount of direct government subsidy are archived by VSCD<sup>9</sup> (De Vereniging van Schouwburg- en Concertgebouwdirecties), a major association for theater in the Netherlands founded in 1947.

In its summary document *Podia 2008: Cijfers en Kengetallen*<sup>10</sup>, an overview on the situation in 2008 is given. What is particular interesting is that, the situation in 2008 is compared with previous years, in terms of number of performances and concerts, annual attendance, revenues and expenses, as well as subsidizing situation. As it is stated at the beginning of the document (Podia 2008) that,

*Het aantal voorstellingen en concerten dat door de leden van de VSCD wordt*

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<sup>8</sup> MOCW: <http://www.rijksoverheid.nl/international#english>

<sup>9</sup> VSCD: <http://www.vscd.nl/>

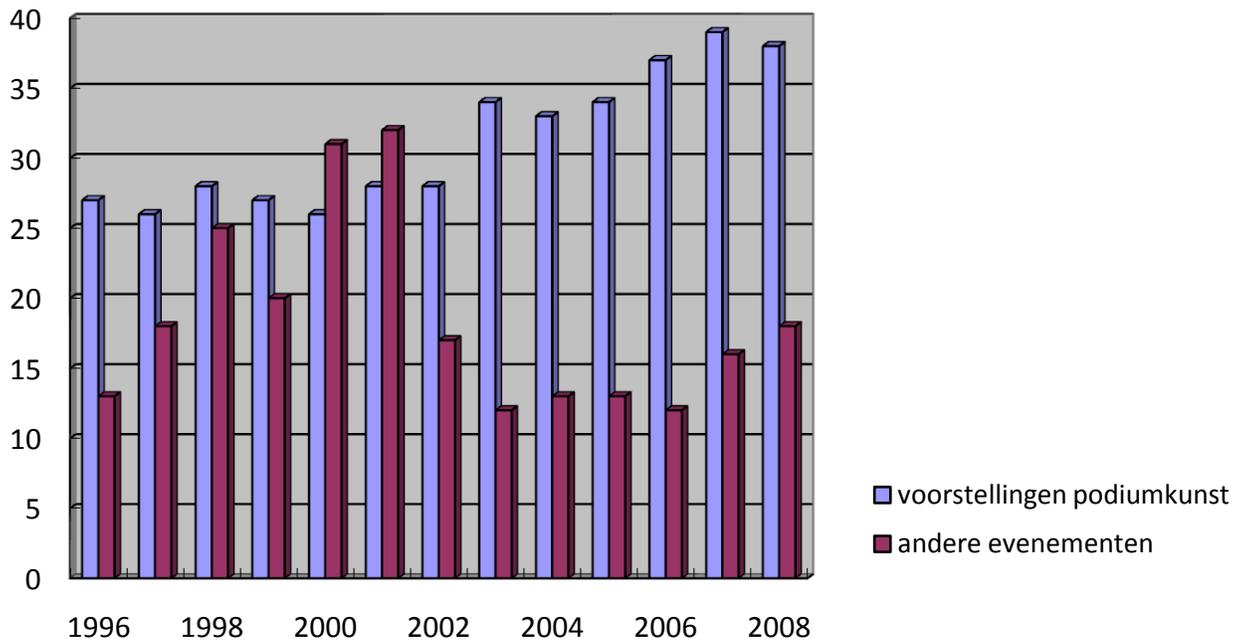
<sup>10</sup> Podia 2008 Cijfers en Kengetallen: [http://www.vscd.nl/cms\\_files/File/minibrochure\\_tas\\_2008.pdf](http://www.vscd.nl/cms_files/File/minibrochure_tas_2008.pdf)

gepresenteerd is in de jaren gestaag gegroeid, maar nam in 2008 voor het eerst licht af met -2% tot 38.474 (2007:39.267). Het bezoek nam in 2008 daarentegen opnieuw toe met 5,5% tot 13,9 M (2007: 13,2 M). Ook 2005, 2006 en 2007 gaven al een stijging te zien. Het aantal niet-culturele evenementen (beurzen, feesten, partijen) nam in 2008 opnieuw sterk toe met 20% tot 18.380 (2007: 15.580), het bezoek daaraan nam met 9% toe tot 2,5 M.

This is to say that, over years, the number of performances organized by VSCD members increases steadily, except in 2008, where slight drop in numbers (2%) is witnessed. The total performance number is 38,474. Nevertheless, this change quite unexpectedly does not affect the growing trend of attendance. Since 2005, gradual increases of audiences are observed, and by 2008, the number of visits increases by 5.5% and reaches 13, 9 million people. Graph 2.1 below shows vividly the change in attendance in the past 13 years.

**Graph 2.1 Attendance performing arts / concerts and other activities**

Voorstellingen/concerten en andere evenementen \*1000 (source:Podia 2008)



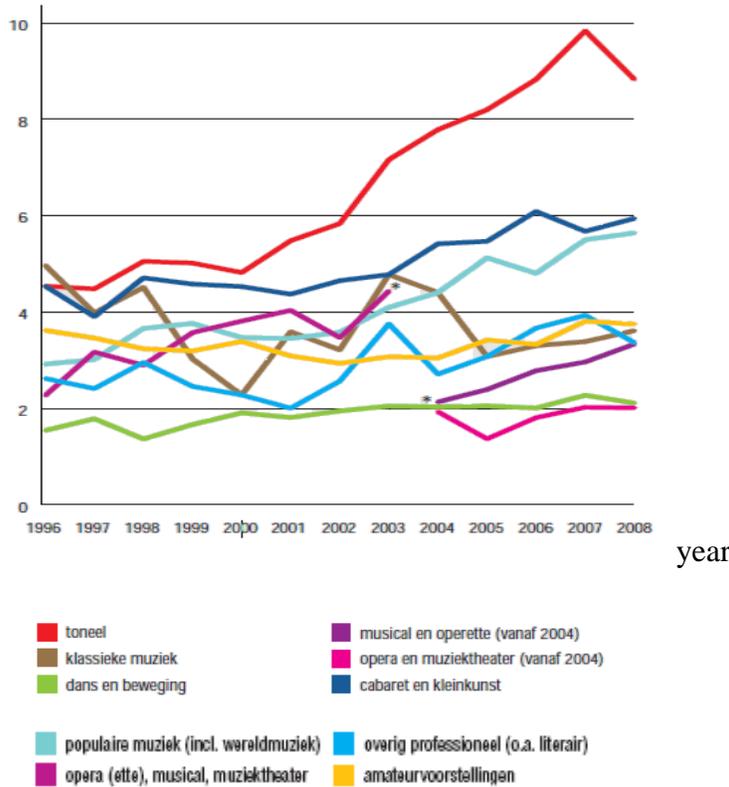
Here, stage performances and concerts are calculated together as voorstellingen

podiumkunst. Later in the document, differences in genres are distinguished. Graph 2.2 below is an overview of attendance per genre, which can give us a better view on art forms individually, including the situation of repertoires this research intend to look into.

**Graph 2.2 Performing arts and concerts according to genres**

Voorstellingen en Concerten naar Genre \*1000 (Source: Podia 2008)

No. Of attendance \* 1000



Note: From 2004, the genre of opera, musical and mesical theater splited into two: musical and operette, & operas and musical theater (Vanaf 2004 is de telling van 'opera(ette), musical, muziektheater' gesplits in 'musical en operette' en 'opera en muziektheater' ).

From Graph 2.2, it can be seen that, in the last 13 years from 1996-2008, Toneel (repertoires) enjoys most significant change and an overall increase trend, before the year 2008. In general, repertoires attract most audience as well through the years, with minimum 4500 people annually. Since the beginning of the new century, attendance to stage performances grows drastically; this reaches a peak in 2007 with an annual

attendance of almost 10,000 people. This number dropped to less than 9,000 in 2008.

As to other genres, a mild dip and increase is witnessed, but the changing range is not significant. Cabaret en Kleinkunst (cabaret) performs better over the years when compared with other genres, with overall 4000-6000 attendances annually. The least attended genres are dance performances and operas.

Given the steady growth of voorstellingen (performing arts forms), we expect growing subsidy granted to the organizations, based on the assumption that our hypothesis that government subsidy has a significant impact on theater productions. This means that, among all financial resources, the proportion from central government should display similar changing pattern as the changing situation in performances.

Before going into this question, the role of Dutch government is to be examined. What kind of the priorities do they hold in viewing and supporting arts sector? The following parts look into these questions.

#### 2.4.2 Cultural policy Outline

As stated in the governmental document *Art for Life's Sake: Dutch Cultural Policy in Outline* (2006:5) that “Like science, art explores the boundaries of the unknown”, it is important that the support from the government is sufficient and positive. The authorial power of the central government often gives an impression that it dominates the development of cultural sector through formulating cultural policies. Indeed, the regulations and rules in cultural field have a great influence on a given cultural organization.

The prosperity of culture, or narrowly development of arts sector needs a broad base. It can be argued that arts should not be seen as an “exclusive” or “predominant” government affair. This means that the cultural ministries and related offices do not necessarily play a role of controlling and dominating. Instead, an objective of the work should be to encourage the attention and contribution of the general public to the arts sector. The support for culture can be various. It can be from individual level through repeated visits, generous donations, etc. Just as stated in the *Art for Life's Sake* that “the role of government is merely to actively encourage, to promote; its job is to rouse the vibrant forces of society – the artists, those sensitive to art, those who long for art – and

bring them closer together” and “it is precisely by encouraging as many people as possible to participate in cultural life that we can create scope for excellence and innovation. Lofty peaks need a broad base.”

### **Five Priorities**

The priorities of the Dutch government are changing through years. *Culture as Confrontation* was the cultural policy document presented in the year 2000. By then, government priorities identified were cultural diversity, audience reach and cultural entrepreneurship (*Cultural Policy in the Netherlands, 2006:147*). While in *More than the Sum*, the policy document published in 2003 and the *Cultuurnota 2005-2008*, three main themes of cultural policy are focused on that are (*Cultural Policy in the Netherlands, 2006:147*):

- > Less bureaucracy and more individual responsibility in the cultural system
- > *More connection and interaction in cultural life*
- > *Reinforcing the cultural factor in society*

With the main themes in mind, let’s see which aspects are emphasized in formulating cultural policy. The *Art for Life’s Sake* provides a guideline, which portrays a relatively clear picture about the priorities in arts section.

Firstly, excellence in the arts is of significant importance. It is stated that “the government’s cultural policy aims to create more scope for talent in the coming years. The government wants the Netherlands to be able to attain, maintain, or improve its leading position in the international arts scene.” To keep up the excellence of Dutch arts, constant innovation is necessary, and thus is of great importance. Whether this innovation in content is achieved among theater groups are what I intend to find out in chapter 4 and 5.

Secondly, innovation and E-culture are important policy concern. “The Council considers two topics in its advisor report that have a huge impact on the production and consumption of culture: e-culture and innovation” (*Art for Life’s Sake, 2007:17*). E-culture refers to digitalization. Here innovation is closely related to the technical development and renovation used in the cultural field. Central government encourages the cultural expression in digital ways.

Thirdly, Dutch cultural offices make effort in enhancing cultural participation. This

concern is in accordance with the “experience goods” character of cultural goods. As discussed above, individual interest and ability to appreciate is positively influenced by a person’s frequency of cultural experience. Therefore, it is extensively meaningful to take actions in increasing people’s involvement in culture.

Fourthly, to establish “a more beautiful country” is another concern of Dutch cultural policy. This aim mainly reflects in the architectural policy, which not only emphasizes creative and sustainable designs, but also gives attention to the work on modernizing conservation and preserving heritage.

Fifth, the last but not least cultural goal is to establish and maintain a strong cultural sector, as “a flourishing cultural life depends on having a strong culture sector with deep roots in society” (Art for Life’s Sake, 2007:33). Here, increase in public funding is proposed. The ministry (2007:34) states in the document that, “Financial and public support will be greater if institutions adopt good governance practices, make more efficient use of their resources, and utilize alternative sources of funding.” In order to obtain subsidy, art organizations have to make effort in “forge closer relationships with audiences” and “reflecting the breadth and diversity of the public’s interests” which will thus, “require their managements to take a professional approach, one that involves identifying their specific target audience, defining precisely where their institution stands in the entire spectrum, and appealing successfully to their target audience by developing interesting productions and programs, with effective communication and marketing”(Art for Life’s Sake,2007:34).

It can be seen that innovation is emphasized in the cultural outline of Dutch government. But what struck me is that, the term “innovation” is not explicitly defined, nor is information on how innovation is measured is given. Given its subjectivity, it is indeed difficult to make a concrete numerical measurement for it. For the funding period 2009-2012, *Art for Life’s Sake* (2007:45) outlines three criteria for theater companies, as “The Council advises funding eight municipal or regional theatre companies and a Frisian-language company. The institutions qualifying for funding are responsible for a set of demanding tasks.” The criteria are as follows:

- *The applicant has access to its own medium sized or large venue or is affiliated with the municipal theatre in the place where it is located;*

- *The applicant is located in one of eight designated places: the cities of Amsterdam, Rotterdam, or The Hague, the regions North, East, South, or Utrecht, or (in the case of Frisian language companies) the Province of Friesland;*
- *The applicant's articles state that continuity is one of its objects, regardless of the number of makers involved.*

In the last criteria, “continuity” is explicitly required. No requirement is given on the content of their production, which to my mind is a lack. Even for “continuity”, few explanations is given on how precisely this is going to be evaluated in the application procedure. Thus, it can be seen that objectives including “continuity”, “innovation” are easy requested but hard to make clear. In chapter 4, the concept of “innovation” is discussed, which hopefully can supplement this lack.

As to the three major cities in the Netherlands, it is indicated in various documents that the capital city Amsterdam is also the capital city of performing arts. The following part explains the significance of Amsterdam for performing arts, which makes my second research question meaningful to investigate.

#### *2.4.3 The Significance of Amsterdam*

According to the *Cultural Policy in the Netherlands*, The four large cities (Amsterdam, Rotterdam, Utrecht and The Hague) develop their own activities, which are funded in part from their own local funds, and in part from central funds. Amsterdam, being the capital city of the Netherlands, is deemed as the capital of performing arts for a long time. According to *Recorded audience performing arts (97/98)*, that Amsterdam remains to be the most important city for the performing arts, even though The Hague and Rotterdam are making up their arrears.

This regional difference makes the comparison between cities interesting. The report 12 years ago also indicated that, “under the influence of the large cities, the provinces of Noord-Holland and Zuid-Holland lead the field. One in every six performances is given in Amsterdam. Indeed there are just as many performances in the three other large cities (The Hague, Rotterdam and Utrecht) together, as in Amsterdam”. Furthermore, the number of performances and audiences has only risen slightly in recent years in

Amsterdam though, while in Rotterdam and The Hague the increases have been quite substantial. In 97/98 The Hague had 20% higher attendances than in the preceding season.

The expectation of Amsterdam being the most crucial city of performing arts is understandable. From the geographical aspect, the capital city Amsterdam inhabits over 1.4 million people, which makes it the biggest in terms of population. This to an extent ensures a large size of potential demand. Also, the benefit of being a capital city is also obvious. Amsterdam enjoys a reputation worldwide. Each year it attracts millions of tourists from all over the world. The cultural atmosphere and the growing economy also make the prosperity of arts sector possible. Thirdly, Amsterdam inhibits more theater companies than other cities. The rich performing arts tradition creates a cultural atmosphere that is important to the development of contemporary theater groups.

By now, the theoretical framework on cultural goods and government subsidy is built up. This serves for the foundation of the research in chapter 4 and 5. The characteristics of cultural goods are discussed, the objectives of cultural organizations are covered, the benefit of non-profit type of art organizations is looked into, and the arguments for and against government subsidy is also given. In addition, the historical overview on Dutch cultural tradition and contemporary cultural policy outline creates a case in reality for us to think on upon.

Having discussed all this, the following chapter proceeds and brings the research into the discussion of the next central concept: innovation.

### 3. Government Subsidy and Innovation

Based on the discussion on the desirability of government subsidy, the following analysis centers on the issue about the efficiency of government subsidy, and how it is related to programming innovation of theater groups. The artistic output of theater groups is the performances, which is deemed to be the focus of daily works in theater groups. Therefore, it can be assumed that a significant part of subsidies are used in this account. Whether or not it enables theater groups to innovate more in new performances is intended to be found out.

To do so, I first discuss the term “innovation”, a rather tricky concept, and yet the precious definition of which is crucially argued among cultural economists. Following this, I investigate how innovation is reflected in the repertoire production of theater organizations. Later, I concentrate the discussion on the measurement of the subjective concept and here I propose *conventionality index (CI)* and the *number of new plays* as two measurements. How CI is calculated and used in previous researches will also be discussed. After this, I combine the analysis of subsidy efficiency and innovation, where the impact of subsidy on innovation is discussed. At the last part of this chapter, I propose the hypotheses for this research.

#### 3.1 Defining Innovation

##### 3.1.1 Creative input and Humdrum input in production

Perhaps what can generally be agreed on the concept of innovation is that it is extremely different to define and capture. A simple definition of innovation is that, it entails that something new is created. But questions like what is considered new, what is the standard for comparison, does being different automatically mean new, etc are raised, which forces extra efforts to be made on this topic. This is especially true when we focus on the art world, where artistic creativity and innovation in production are the essence. For this, no one definition of innovation has been proposed and used, which unfortunately poses an obstacle in research on this topic as there is the lack of consensus on the phenomenon under study (Castaner & Campos, 2002:29).

Innovation can be investigated from two different levels in a given sector: organizational level and production level. On the organizational level, Bruno Frey (1999: 75) specified two types of sources for innovation within a cultural organization that are: “institutional creativity and personal creativity”. This classification distinguishes the output from the supplementary side and the core production side. “Institutional creativity” refers to “the creativity produced by adequate institutional conditions” such as price system adopted by a cultural organization and “personal creativity” is used to describe the intrinsic creation of artists (Frey, 1999:76).

Apart from “institutional creativity” and “personal creativity”, other similar terms are also used to distinguish these two, such as ‘content creation’ vs. ‘humdrum innovation’, “technological innovation” and “non-technological innovation”, or “product innovation” and “process innovation” (Handke:2006,7). This division also tells us that, from the production level, the input in producing cultural goods can be seen as of two parts: creative input and humdrum input. Creative input refers to inputs given by the artists in “the creative process that is understood to consist in the production of a single and unique piece of informational content” (Handke, 2006:6). Whereas humdrum input can be understood as the other inputs that “encompass the entire range of administrative, organizational and material tasks entailed” in the cultural production (Handke, 2006:6).

This classification, when reflected in a theater company, separates the managerial staff from the artists. In a theater group, artists refer to people who are directly related to the creation, design and rehearsal of repertoires. These people create and innovate in terms of the content. Thus, their effort and intelligence is directly expressed in the outcome of a performance. Accordingly, a theater organization cannot operate without a team of administrative, marketing, technical and public relations people. This team deals with the fixed side of work, which assists and ensures the core production can continue smoothly. For this part of the work, innovation also exists. For example, modernized management style, more advanced lightning technology, better sound transmission equipment, and new ways of marketing, extra sponsorship seeked, etc can all benefit and enhance the efficiency of core production. These efforts are viewed as “institutional creativity”. Though it is clear that for a cultural organization to innovate, the creativity that is the sense and ability to create, of both type are crucial and necessary, it can be seen that

personal creativity put a business at stake.

Caves (2000:1) distinguishes between creative inputs, i.e. “artists”/creators and their contributions, and humdrum inputs by lawyers, business managers, accountants, etc. It can be seen that creative activities directly link to the creation of cultural goods which are at least new and unique, whereas other activities that include administrative, organizational and manufacturing works contribute to the preparation for and the assistance to the creative activities.

With the distinction of two types of innovation on organizational level made clear, it is important to point out that, in this research, innovation is mainly focused on the innovation during the actual programs, which are intrinsically created by artists, but under the scrutiny of the theater company. Therefore, it is the “content creation”, “technological innovation” or “product innovation” that my research is focused on. This type of innovation, is what I consider as “program innovation”, as my research title shows. After all, what a theater organization holds most important is the process of artistic production, with the goal of bringing high quality new plays.

On the production level, program innovation still gives out a vague image. As discussed above, a simple definition of “the introduction in the field of something new” (Castaner & Camposs, 2002) need to be further elaborated. The “newness” indicates a comparison between two states, based on which, can we judge which one is newer than the other, and thus more innovative. For example, for the theater production in a given season, one has to compare the repertoires in this season with the repertoires of previous seasons, or the repertoires from other theater group, in order to see if it’s of any newness.

In order to make a comparison, Castaner & Camposs (2002:31) listed three possible referents, for this purpose. The referents are given the names as “cosmopolitan referent”, “local referent” and “self-referent”. Cosmopolitan referent refers to all the other organizations in the same field globally. It compares one organization’s productions with that from another organization. Local referent is the regional organizations in this field. This referent limits the organization to a smaller but more meaningful environment. It could be on a global scale one organization is quite innovative, but on a local scale, it is just normal or even lag behind. For example, if many theater groups in a certain season produce the same cotemporary play, which is not played elsewhere globally, we can argue

that in this sense theater groups in Amsterdam are quite innovative. But when it comes to the comparison between each other, their individual program is not more innovative than another, as they choose to play what other's also produce. As to self-referent, it is the organization itself. An organization can use itself as a standard, to have a historical view of the production of today and past. The comparison is between the current productions and the productions in the previous years.

It can be seen that the cosmopolitan referent, that is the global comparison is too broad for this research. It would be more useful to analyze the innovativeness or the importance of a certain industry in a country on an international environment. Similarly, the self-referent has a significant meaning for an organization for a qualitative research that focus on a particular organization. But it is not so interesting to look at, as "from a self-referential perspective, each of them (art organizations) is innovating at least in the sense of adopting a new (contemporary) piece (Castaner & Campos, 2002:32).

Local referent on the other hand, is quite interesting to be used as a reference. This is because that, all cultural organizations are performing and competing in a local environment such as a province, a city or a town. In order to attract more audience, generate more sales revenue and have higher reputation, organizations need to be comparatively better than others. Thus, it is important for them to be more innovative as well. By using other theater groups as referent, an organization can easily identify itself and see where it can improve.

For this research, the local referent is used for checking the degree of innovativeness of theater groups. With the referent agreed, the task left is to set up "rules" for comparison between theater groups. What is traditionally focused on in this debate is the repertoire innovation, where the programming of contemporary work is regarded as the sole aim (Castaner & Campos, 2002). The comparison can be on quantity, meaning to compare the number of contemporary works used in one theater group with the other. A theater organization with more number of contemporary pieces are considered more innovative than the other, as the risk that the pieces are not received by the general audience exist, and it takes courage and insight to bring something new to the field.

In addition to the quantity, what can also being seen as innovative is the use of multi-disciplines. This is to say that, even with a traditional repertoire, creative thoughts can be

put in to make the performances more attractive. For example, to use different music instruments in a scene, to insert dance scene when necessary, to replace a dialogue with a better monologue, etc are intended innovations. This innovation in quality is unfortunately very difficult to evaluate and measure.

Moreover, the innovation can also take place in the way how a play is displayed. Smart art managers like to make it possible for actors to interact with audiences during or after the performance. A high interactivity during the performance often results in high level of audience satisfaction, and thus is paid more and more attention to by theater groups.

By now, it can be seen that, in the domain of performing arts, innovation may take various forms, among which the following three are examples:

- 1) The use of contemporary pieces
- 2) The combination of multidiscipline
- 3) Creative interaction with audiences

With the basic concept of introducing something new to a certain field, as Castaner & Campos finally agreed on, innovation still remains to be a rather subjective concept, as the examples given above can only be used in determining whether a theater group is more innovative than the other, but the degree of innovativeness, that is how much one is better than others cannot be settled with a formula or any measurable way. A lot of times, we have to judge case by case, which somehow makes the situation more complicated.

### ***3.2 Measuring program innovation***

Given the discussion above, one can see that, a perfect measurement of innovation is desirable but highly unachievable, as certain aspect of innovation is simply immeasurable. Nevertheless, efforts are still made by cultural economists (Frey 1999, Castaner & Campos 2000, O'Hagan&Neligan 2005, Rushton, 2000) in this attempt. As mentioned above, the innovation in repertoires are traditionally a concentration. The innovation in quality and quantity of repertoires is particularly paid attention to.

In this research, I propose two measurements for program innovation to evaluate the degree of innovativeness in repertoire production: conventionality index and the number of new plays. These two measurements are used for the purpose of looking into program

innovation from both quality side and quantity side.

### 3.2.1 Conventinality Index

Instead of trying to quantify the degree of an innovativeness of a repertoire production by a given theater group, the opposite way of evaluating the level of innovativeness is to measure the degree of its conventionality. This way of measuring program innovation is called conventionality index (*CI*), a method which was first used by DiMaggio and Stenberg (1985) and then later by O'Hagan (2005) in previous empirical researches.

*CI* is a measurement over playwrights. It is an index that is calculated to see how often the works from a playwright used in a given theater group is also adopted by other theater organizations. Thus, it measures the frequency that two or more theater organizations use the works from the same playwrights. The reason why the method is named as conventionality index is because that, the use of same author for plays are considered as conventional, as to try the piece from a unknown playwright involves risk, for audiences may be discouraged for works from a new playwright due to the “experience goods” character discussed in chapter two. As a result, it can be expected that, if a theater group is quite conventional in its production, it will rather adopt plays used by other theater groups as well, in order to reduce the risk.

A diversified combination of playwrights for a given production season is considered as innovative, which in other words, a limited sets of playwrights are deemed as conventional. Conventinality index can be expressed in the following formula:

$$CI = \frac{\sum_{i=1}^n p_i}{n}$$

Use the explanation from O'Hagan & Neligan (2005) that “*P<sub>i</sub>* is the number of theatres in the sample under consideration that produced a play by the playwright in question and *n* is the total number of playwrights whose work that theatre produced in the period in question. It is the average number of theatres in which each play or playwright produced by a given theatre was produced elsewhere in a given period. We expect that a theatre with a high value of the index is quite conventional in its repertoire, when compared with one that displays a lower index value. High values of *CI* mean that there is high

conventionality in repertoire in the theatre, while low values indicate a low level of conventionality. The minimum value for  $CI$  is 1, with the upper limit depending on a variety of factors.”

In practice, data of three components is needed for calculation  $CI$  value. Take William Shakespeare in theater A as an example:

\* $P_i$ : the number of theater groups that choose Shakespeare plays in the given season, when  $i$  refers to Shakespeare

\* $n$ : the number of playwrights in total in theater A

\* $\sum_{i=1}^n p_i$ : the sum of all  $P_i$   $\left\{ \begin{array}{l} p_1 \text{ William} \\ p_2 \text{ Miller} \\ p_3 \text{ O'Neil} \\ \dots \\ p_n \text{ Shaw} \end{array} \right.$

An example can be given as follows.

**Table 3.1 Example of Conventionality Index**

Theater 1		Theater 2		Theater 3	
playwright	$P_i$	playwright	$P_i$	playwright	$P_i$
Shakespeare	10	Williams	7	chekhov	3
O’Neil	2	Shakespeare	6	O’Neil	2
Moliere	3	Jose Klaase	2	Sheridan	4
Johan Ibsen	1	jonker	2	frisch	3
Eva keuris	1	hilhorst	4	Shaw	10
Miller	1	jong	3	vanleeuwen	2
$\sum_{i=1}^n p_i$	18	$\sum_{i=1}^n p_i$	24	$\sum_{i=1}^n p_i$	24
$n$	6	$n$	6	$n$	6
$CI$	3	$CI$	4	$CI$	4

It can be seen that, with the formula  $CI = \frac{\sum_{i=1}^n p_i}{n}$ ,  $CI$  value can be easily calculated once the three aspect of data are a given. It is shown in the example that theater 2 and 3 has the

same score for their index, though authors differ between them. A *CI* value of 4 is higher than a score of 3, which indicates that theater 1 is less conventional than the other two. In other words, theater 1 is more innovative in this regard.

The conventionality index estimates the willingness of theater groups to take risks in their program decisions. The advantage of the index lies in the fact that it is “in essence a relatively objective means for quantifying opera company (or similarly theater group in this case) behavior”(Pierce, 2000:53) and thus can efficiently distinguish between theater groups that conduct productions with low-risk plays and those that take the risk and be more innovative.

I consider *CI* measurement as a quality measurement, though it is far from perfect. It's worth noticing that, this quality change does not necessarily mean one play is better or worth, but rather, it is to look into quality from the perspective of production diversity. The use of playwrights to an extent shows how the quality of production is changing, as it can be expected that plays from different authors are of different contents, different styles and thus the adoption of different playwrights ensure at least a diversified repertoires.

The disadvantage or the drawback of conventionality index method is also quite obvious. As Castaner & Campos (2002:31) point out that, *CI* conveys conformity in programming, and it indicates lack of innovation. This is still slightly different from being innovative. Additionally, whether the diversity of program is the same thing as being innovative is also under concern.

Furthermore, to investigate the number of playwrights instead of focusing on the content of plays is a limitation. Theaters can produce several plays by the same playwright, but the genre and styles could be quite different. Therefore, to just count the frequency of a playwright being used also by other theaters can only reflect the diversity to a limited degree.

A script from a popular playwright has a higher chance to be chosen than an unknown playwright. Therefore, the classical theater plays by famous playwrights such as William Shakespeare, Eugene O'Neill, have already established good reputation, and therefore, more likely to be used. Based on the use of playwrights, the innovative attitude of an organization can be reflected.

### *3.2.2 Number of New plays*

Another measurement that is applied in this research is the number of new plays. With this tool, I aim at investigating innovation from quantity perspective. Though one cannot always anticipate a direct association between a large amount of repertoire production and the quality of them, it can be expected that a theater group with more productions, especially with more new ones, tends to be more risk-taking and can think out of the box.

For this measurement, I will use self-referent discussed above as a reference. In this way, I can decide which repertoire production of this season is new. Therefore, the artistic output will be compared with the output in the year before. By new play, I refer to the repertoires that haven't been produced and performed in previous years. To see how many new titles appear in the production is a good way to check.

To calculate how many new plays a theater has produced can to a certain extent make the research more accurate and reliable. The way I do to obtain the data is to count in a given season the number of plays that are first designed or shown. For performances that are repeatedly shown in the following seasons after designed, only the first season when it has the "debuted" counts as a new play.

Though both definition and measurement of innovation is not perfect, the discussion makes the concept used in this research clear. Following the measurement, it is interesting to proceed with the research by investigating the theoretical argument on the relation between government funding and program innovation.

### *3.3 Government support and Innovation*

For the issue whether government funding will promote innovative spirit of art organizations, the two answers "yes" and "no" are held by different people. This forms standing debate. Furthermore, David Throsby (2001: 110) elaborated in his book, based on his experiences with artists, that "many creative artists resent the thought that their activities form part of an industry. Such a proposition, they believe, emphasizes that commercial impulse of artistic production and subjugates the pure creative impulse to the demands of the market place." The "yes" holders believe that government does promote innovation through providing financial aid. The "no" holders believe that government subsidy crowds out the spirit. Just as Frey (1999:71) indicated that: "On the contrary,

they claim that the state damages culture. This “government bashing” constitutes a rather extreme ideological view not only among economists but also among artists and other commentators.”

This “yes” or “no” argument can be deemed as a case for the crowding theory. For “yes” answer, it is believed that government subsidy crowd in the intrinsic motive for cultural organizations to perform better and innovate more; whereas for “no” answer, government funding is seen as a incentive that contradictorily crowd out the original intention of cultural organizations to stay creative. Throsby (2001, 77) argued that “rewards, in monetary or non-monetary form, reduce creativity.” There exists “hidden cost of rewards”, which states that rewarding highly motivated persons to undertake a task tends to reduce their intrinsic motivation.

Furthermore, Frey (1999, 71-77) also elaborated that: “Artists and arts organizations out of line with what is defined as “good art”, or even as “art” at all, by the government find it most difficult and often impossible to get public support” and that “many government regulations and restrictions imposed on public art institutions is another way of inhibiting creativity as they hamper or forbid change”.

As to previous research done on this topic, contradictory results have been discussed in many academic papers as well. For example, in the paper by Castaner and Campos (2002), several research conclusions are given:

\* In contrast to U.S. opera houses which heavily depend on private sponsorship and the box office, European opera houses are able to program more contemporary operas thanks to being publicly subsidized” (Martorella,1977).

\* making support contingent on a particular artistic performance and a uniform treatment of aid recipients both contribute to crowding-out personal creativity” (Frey, 1999:81).

\*a guaranteed public financing of the budget deficits of arts organizations discourages creativity... It does not promote creativity; rather, it promotes conservatism” (Frey, 1999:75).

Additionally, the sources of government subsidy are also under scrutiny. Frey distinguished the central government subsidy from the local government funding. His results indicate that while, as expected, funding from the National Endowment of the Arts

(NEA) marginally reduces the degree of repertoire conventionality, contrary to the hypothesis, non-federal funds increase the level of conventionality (Pierce, 2000, p. 57).

However, interesting opposite result is found out by Pierce (2000), where he proposed that “local government funding encourages program conventionality, whereas national support would encourage program risk-taking”.

No matter what the argument is, the source of subsidy is an intriguing viewpoint that worth further effort and research, as it often can be argued that whether public or private, a range of diversified external funding can encourage arts organizations in engaging more in artistic innovation. However, due to practical reasons of this research such as limited time and difficulty in obtaining all data, the effect of local government on programs is not taken into measurement.

By now, the construction of the theoretical framework for this research is finished. It is clear that, cultural goods represented by performing arts are of unique characteristics that separate them from other economic goods. This can result in the mis-function of the market, provided that no other forces interfere. Under the market failure, the supply and demand of cultural goods are undermined, the result of which is not desired. Whereas the intervention of government through subsidy is beneficiary for cultural organizations in releasing financial pressure, it can also damage the intrinsic spirit of innovation. Due to the complicatedness of defining and measuring innovation, whether such damage exists or how strong it is if any, is not clear.

With this framework in mind, the following section gives the hypotheses I propose, before the practical research which is elaborated in chapter 4 and 5.

### ***3.4 Hypotheses***

Based on the analysis above, I propose two sets of hypotheses in order to investigate the association between the amount of subsidy and the innovativeness of theater groups. The first set concerns the general trend that covers all three cities. As anticipated, the amount of government subsidy could promote the degree of innovativeness of theater groups through providing external financial resources. Thus, I propose:

**Hypothesis One      Government subsidies received each year by theater groups positively influence the innovativeness of their productions.**

As discussed above, I mainly use two measurements for innovation: conventionality index and the number of new plays. Though both of the two measurements reflect the degree of innovativeness of theater groups, they evaluate it from different aspect. Conventionality index looks into the habit of a theater group in using playwrights, while the number of new plays calculate the production of plays that are not been performed before. Based on the first hypothesis, I further divide it into two sub-hypotheses. They are as follows:

Sub-hypothesis 1: with other factors controlled, the amount of government subsidy received negatively affects the conventionality index score of theater groups.

Sub-hypothesis 2: with other factors controlled, the amount of government subsidy received positively influences the percentage increase of new plays in theater groups.

As I indicated in the introduction that the possible differences between cities are also of my interest. Amsterdam, Rotterdam and The Hague are the three major cities in the Netherlands.

They are more developed both in terms of economy and culture than other cities in the country. The big difference between them is that Amsterdam is the capital, while The Hague is where the government situated. Whether political or geographical influences also have an impact on the cultural consumption in these cities is to be found out in this research as well. Compare with Rotterdam and The Hague, the advantage of Amsterdam as a city is, first of all, that it is the capital city. This advantage is enlarged when the country is small. Amsterdam enjoys relatively more attention worldwide than the rest two. Secondly, as the capital city, Amsterdam is relatively bigger in size and inhabits more residents. This could create more possible demand. Thirdly, Amsterdam is famous for its freedom and diversity. To meet up the demand, Amsterdam posts itself as a cultural

diversified city. This can also influence the performing arts production. Fourthly, Amsterdam inhabits more than 36 professional theater groups, whereas Rotterdam only has 6 and The Hague 3.

Based on the assumption, I propose my second hypothesis:

**Hypothesis Two--theater groups located in the capital of Netherlands are more innovative in terms of their productions than theater groups located in Rotterdam and The Hague.**

Similarly, this hypothesis can also be divided into two sub-hypotheses:

Sub-hypothesis 3: with other factors controlled, theater groups in Amsterdam score low in conventionality index than theater groups in Rotterdam and The Hague.

Sub-hypothesis 4: with other factors controlled, theater groups in Amsterdam witness a higher percentage increase of new plays than theater groups in Rotterdam and The Hague.

## 4. Methodology and Data Collection

### 4.1 Methodology

Quantitative method will be used in this research to testify the hypotheses listed in Chapter three. As I intend to generate an overall pattern among all theater groups that are studied, quantitative method that focuses on the concrete data serves the need of the research. The analysis is based on the numbers collected from various official sources including the ministry of education, culture and science (MOCW). Compare to quantitative method, the other primary way of doing research, which requires the interpretations and investigations of countable cases, qualitative way is more suitable for the purpose of this research, which is the reason for me to do it this way.

Available secondary data are used for my research. Since the research goes back to the past eight years, it would be practically impossible to gather first-hand data through ways such as survey or questionnaire. What makes it easy is that secondary data needed are quite well-documented by several cultural organizations and departments, and assistance is provided by these organizations through the process of obtaining the data.

As my hypotheses in chapter three indicate, that to conduct the research, the two major variables, are the amount of government subsidy and the degree of innovation which is measured through the conventionality index and the number of new plays. Therefore, a set of theater groups have to be decided as the “cases” in the three big cities in the Netherlands. Nevertheless, a selective attitude is required in determining which theater group should be included. After consulting the Nedelands Fonds Voor Podiumkunsten (NAPK), I narrow my research on 23 theater groups in total, among which 17 theater groups in Amsterdam, 3 in Rotterdam and 3 in The Hague.

Firstly, according to the Theater Instituut Nederland (TIN), stage performances are divided into the following disciplines: stage play, dance, mime, musical and puppet. This division is also used in their documenting of all the programs from each theater group. As the focus is the repertoires, theaters that are active in repertoires are chosen. Secondly, several theater groups are not granted with government subsidy, they either survive through box office or other funding resources. As the research aims to analyze the

association between the amount of central government subsidy and the degree of innovativeness, it is necessary to limit the scope to theater groups that directly receive funding from the central ministry (MOCW). To look through the cultuurnota, the official document to record all the cultural policies as well as the funding of the previous years, it can be seen that theater groups including Hummelinck Stuurman theaterbureau, ikpresariaat Wallis B.V, etc are not included in the funding scheme, therefore have to be excluded from the list. An overview of all theater groups included in the research is given in Appendix one.

The 23 theater groups forms up 23 cases, for which data from 2001 -2008, the two funding period that are investigated, on subsidy and other control variables are collected. Thus, together I generate 184 (23\*8) observations. All observations (184) form a longitudinal dataset that has two dimensions: id-dimension where data varies accordingly to the change of theater groups and time-dimension where data changes in consistence to the movement of time.

This type of longitudinal dataset is named as “panel data” in econometrics. The statistical program Stata is one of the popular statistical software for handling panel data, particularly when compared with SPSS, another program for statistic calculation, and therefore is used in this research. A significant advantage of Stata is its clearness and less complication when dealing with panel dataset.

Stata can be used to calculate regressions, from the basic OLS (Ordinary Least Square) regression to more complicated fixed-effects regression (FE model) and random-effects regression (RE model). The basic steps in using Stata for the purpose of this research are as follows. I first use correlation command to check the simple correlation between variables to have a general overview of all variable associations. Then I use OLS regression to test the relation between independent variable and dependent variable. With this, an overall outlook of causal relations between the two can be detected. Then, I test this causal relation by using the FE&RE models command, the result of which depicts more accurate causal relations for panel data. For this, the difference between FE & RE models will be discussed later. After this, I use Hausman test to test errors, which in a way makes a judgment whether FE model or RE model is better suited for the panel dataset in concern.

#### 4.2 *Dependent variable and Independent variables*

As analyzed in the previous chapters and also as indicated in the hypotheses, the two major variables are a) the amount of government subsidy; b) the innovativeness of theater groups which is reflected through the conventionality index and the number of new plays. The association, and further the possible causal relations between the two are what we are going to find out.

A causal relation implies a cause and result association, meaning one thing is the result of the other. My major assumption is that government subsidy has an impact on the innovativeness of theater groups, as it forms up a substantial part of the funding for these organizations. Whether this impact is a causal one or merely association is the central concern. The fact that the amount of government subsidies granted to theater companies is anticipated to affect the programming makes it the independent variable, as it has an impact on the other. Similarly, the programs produced by theater groups might be influenced by the government funding, which forms up a dependent variable, as it is expected to be “determined” by the other.

Thus, our main hypothesis can be written down in a function as follows:

$$CI_{it} = f (Sub_{it}, Control_{it})$$
$$New\ play_{it} = f (Sub_{it}, Control_{it})$$

With  $i = (1, 2 \dots 23)$ ,  $t = (2001, 2002 \dots 2008)$

Which means, that the  $CI$  value of a given theater group ( $i$ ) in the given year ( $t$ ), is under the function of its corresponded government subsidy ( $Sub$ ), when keeping other factors ( $control$ ) controlled.  $T$  stands for time, which in this case is the year.  $i$  represents a given theater group.  $CI_{it}$  stands for the  $CI$  value of one specific theater group in one given year.

As independent and dependent variables are the basis and also the main focus of this research, it is important to have sufficient data for both variables. Cultuurnota from the year 2005-2008 are available, which documented, apart from other information, the

subsidizing situation from 2005 to 2008 and also the comparison with previous period that is from 2001 to 2004. The concrete amount of funding are recorded in Euros, which proves to be reliable secondary source that are ready for use.

It is interesting to notice that, there are several organizations that were not granted with subsidy in 2001-2004, whereas they were 2005-2008. For example, Bonheur Theaterbedrijf Rotterdam, a company dated back to 1984, is not granted with funding in the period from 2001 to 2004; similarly, toneelgroep de Appel in The Hague also has no funding from the central government, but in the last period, 300,000 euro were attributed to the organization.

An advantage of this sharp change in the value of the independent variable is that, it often leads to noticeable changes in the dependent variable if the assumptions are true, and thus demonstrates significant results. In this research, it is nice to include cases like this. In the analysis, special attention will also be paid to them. But what is a pity is that, as most organizations are subsidized and the time is limited to 2 subsidizing periods, few cases reveal such changes in terms of subsidy amount.

Nevertheless, it can be seen that a general trend among the theater groups in concern is still an increasing funding tendency. Compared with the year 2001-2004, the total increased by 534,517 Euros, which equals to an increase of 22805 Euros per group, even though a couple of organizations showed reduced funding.

As to the dependent variables, the major source is the Theater Instituut Nederland (TIN). As the focus is the past two subsidy periods, the seasonal programs produced by each theater groups are needed. Three basic aspects about these programs are documented in my process of obtaining data from TIN: repertoire name, seasons and the name of the playwrights. The name of the repertoire is the program, and the seasons show in which year it is produced and performed. It is common that a repertoire is shown several seasons once it is designed, which can also be seen as a signal of the success of a performance. As to the playwrights, the names are collected in order to calculate the conventionality index.

Conventionality index (*CI*) is calculated based on the programs. As explained in chapter three, that *CI* is an index that is used to reflect the innovativeness of an organization through comparing its playwrights with other organizations. A higher *CI*

figure reflects a more conservative attitude of the organization in terms of selecting plays.

As the research analyses the situation of the past eight years, the conventionality index is thus calculated annually for each theater group, as I intend to compare theaters with each other on the yearly basis. For each year, the total number of playwrights from all theater groups is counted. Similarly, the total number of playwrights for individual theaters is also counted which is represented by  $n$  in the *CI* equation. In addition, the frequency that is how many times one playwright, among other  $n-1$  playwrights in this theater, appears in the total poll of playwrights is also calculated. In this way, I calculate all the frequencies of playwrights for one theater. The sum of all the frequencies when divided by the  $n$  is the conventionality index result for this theater. Examples were given on the actual calculation in Chapter three.

Missing data, the common problem in most of social researches, appears unfortunately during the process. For example, for certain repertoires, the name of the playwright is not given in TIN's database, or the seasons when certain repertoires are produced and shown are not shown. For missing playwrights, I marked it as blank, which when using Stata, the program ignore the case and does not take it into calculation. Nevertheless, most data are available, and therefore, the conventionality index calculated is sufficient for the coming analysis.

Apart from the conventionality index, another measurement of the innovativeness of theaters, that is the number of new plays is also counted. The way I do to obtain the data is to count in a given season the number of plays that are first designed or shown. For performances that are shown in the following seasons after designed, only the first season when it has the "débuté" counts as a new play.

### 4.3 Control variables

The *Controlit* in the function indicates that control variables exist that need to be set in order to test a casual association between *CI* and Subsidy, as well as between New play and Subsidy. This is because that, the effect from other less important factors has to be eliminated or be reduced to minimal in the first place. The possible consequence of having no control variables is that, the association might not be causal when the other

factors are not controlled. Therefore, the relation between the independent variable and dependent variable has to be tested while other factors are controlled.

These other factors are called control variables, which are factors that have an effect on the dependent variable. In this research, four control variables are included, which are population, location, income level and reputation of the theater group.

### *Population*

The first anticipated control variable is population, which literally refers to the number of residence in the cities that I focus on. The reason to include population as a control variable is due to the possible effect of population size on the daily life in general.

The size of population in a city is closely linked with various aspect of a certain city. These aspects include, for example, the economic situation, the tolerance attitude, the cultural significance, public facility, and possibly the educational level. It can be expected that a city with large population tends to be more prosperous in the economic sense, with more diversified culture, where people are more open-minded. Therefore, when it comes to the assumption of theater performance, a big population may influence the demand positively as it may generate not only bigger but also more diversified demand.

Based on this assumption, the variable “population” is included as a control factor. The data from 2001-2008 for this variable is obtained from the Centraal Bureau voor de Statistiek (CBS), the central statistics Bureau, an organization that keeps record of various types of statistics for the Netherlands. Based on the statistics on population, it can be seen that among the three cities, in general the number of residence has an increasing trend through the years, except Rotterdam, which witnessed slice decrease in size since 2003. Amsterdam, the capital city inhabits over 1.4 million people, which makes it the biggest in terms of population. Rotterdam comes next with less than 1,2 million people, though the data shows that more people move out to other cities in the last couple of years. As to The Hague, it has the smallest population among the three, with less than 1 million residences. This is understandable as The Hague is geographically smaller than the other two. The following is an overview of the population situation in three cities.

**Table 4.1 Population in Cities**

Region	2001	2002	2003	2004	2005	2006	2007	2008
Ams	1394353	1411959	1427846	1443258	1456815	1464776	1471468	1482287
R'dam	1182413	1192289	1192886	1186818	1185092	1177115	1170954	1169800
Hague	868803	876133	883857	978161	984442	991039	991991	997323

*Income level*

The second control variable is the income level. This variable measures the average amount of money received by people, which also has a direct association with the assumption of cultural goods, particularly stage performances. As discussed above in Chapter 2, cultural goods are deemed as “experience goods” which requires on one hand, a fined taste for art appreciation, and on the other hand, sufficient economic means at disposal in order to accumulate the experience. Furthermore, as also mentioned in previous discussions, cultural goods lie on the third level in the demand hierarchy, which indicates that the needs on the lower level are more prior and have to be met first before people can devote time and money for cultural goods. In this sense, a high income level provides a premise that makes the consumption of cultural goods possible.

In addition, the income level in a city also reflects the whole economic profile of one city. We expect that a more prosperous city has a higher income level than a less wealthy city, and vice verse. The wealthy city is able to provide more cultural facilities and infrastructure for its citizens, which can not only boost the supply side of cultural goods, but also create a cultural atmosphere that is inviting. In this respect, the income level is closely and positively linked with the production of cultural goods which also include performing arts.

Moreover, the association between income level and cultural consumption, which directly connects with product innovation, can also be sensed through its impact on the education level, which gives another reason to be included it as control variable. Rich regions are usually also very developed in its educational system, which helps to accumulate cultural experience.

The CBS has data that measures the income level from different aspects, such as the

average household income, average individual week salary, etc. In this research, I use the average individual disposable income as a measurement, as it is the part of income that can be flexibly spent that plays a role in influencing what and where people are going to spend on. This is based on a salary from people who work 52 weeks yearly.

Data from 2001 to 2006 on the average disposable income are available in CBS database, which are shown in table 4. It can be seen that The Hague area has surprisingly a higher income level in general than Amsterdam and Rotterdam. In the continuous six years since 2001, the citizens in The Hague enjoyed higher income than citizens in other two cities, except 2001 when they were 100 Euros lower than people in Amsterdam. Rotterdam comes as the last in terms of people’s income level. Throughout the 8 years, citizens in Rotterdam have in general less 13,000 Euros as disposable spending.

As to the year 2007 and 2008, there is no instant available data of disposable expenditure recorded in CBS database, as these two years are quite recent. To compensate for the missing data, I used the average of the 2005 and 2006 as an estimate for 2007 and 2008. This is because that, within the past six years, there is only slice changes in the income level, and whether a steady increase or decrease is hard to be found in neither of the three cities, and therefore, it will be quite difficult to find a percentage that I can add up for 2007 and 2008. Also, the big economic picture in 2007 and 2008 was not very promising, under the economic crisis. The average of 2005 and 2006 is a reasonable estimate for the income level in 2007 and 2008. The following is an overview of the income level in the three cities from 2001 – 2008.

**Table 4.2 Income level in Cities**

year	2001	2002	2003	2004	2005	2006	2007	2008
Amsterdam	12,500	13,700	12,800	12,700	13,300	13,900	13,600	13,600
Rotterdam	11,600	12,800	12,200	12,100	12,500	13,100	12,800	12,800
The Hague	12,400	13,800	12,900	12,900	13,400	13,900	13,650	13,650

Source: CBS Average income for people working 52 weeks annually (Gemiddeld inkomen bevolking en personen met 52 weken inkomen)

## *Reputation*

The third control variable concerns the theater group itself. The innovativeness of a cultural organization is influenced both by external and also internal factors. A couple of external factors have been listed above, such as the population of a city, the economic situation of the environment, and most of all, and the amount of subsidy. But apart from these external reasons, the factors that are independent of a theater group itself, there are also reasons within a theater group that could influence the direction of program. The reputation of the theater group is among them, one of the very significant one.

Reputation creates a situation where the popular theater group gets more popular. To a certain extent, reputation has a snowball effect, which allows the organization with higher reputation become more and more reputed. As for the consumption of cultural goods, it is costly to acquire the right information, there involves a transitional cost, the effort made on searching and obtaining information. Reputation helps theaters and then the audience to reduce the transition expense. Audiences prefer a performance by a well-reputed theater group, simply because of the good names it already established. In addition, as also discussed above, cultural goods are experience goods, the consumption of which is always “risky” as you do not know what to expect. In order to reduce the risk, audiences tend to choose classical performances presented by popular theater groups. This might incur positive result, that they have more resources and expertise in doing creative performances.

In order to control the effect from reputation so as to get the possible causal correlation between government subsidy and the degree of innovativeness, reputation has to be measured with numbers as well. In this research, I use the number of hits on the official website as a measurement of the reputation of certain theater group. As reputation is a subjective concept and is hard to measure with concrete index, the number of hits can only give a rough estimate, which is an unfortunate disadvantage of this measurement. Nevertheless, as can be seen from the table below, the average hit daily varies quite significantly from theater group to theater group. The relative differences show the different degrees of popularity.

The number of hits is obtained through statbrain<sup>11</sup>. This is a website that specializes its service in estimating the average hits of a domain in a day. By inputting the website of a theater group, statbrain identifies the number of hits previously, and based on which statbrain gives a rough anticipation on the daily average number of hits for a website. In this way, I aim at revealing some truth of reputation in numbers. It can be seen that a higher number of hits implies a higher degree of popularity and reputation. The theater group Nationale Toneel enjoys over 4,000 hits a day.

However, Statbrain has its drawback in that it can only give a general idea about reputation, instead of generating a precise number of hits every day. This is kept in mind during the use of statbrain that it is not a perfect index for reputation, as reputation is rather a subjective concept.

### *Location*

The fourth factor that is going to be included as a control variable is location. Here location refers to the cities where a theater group is located. Therefore, it is a relatively easy control variable as it only has three values: Amsterdam, Rotterdam, and The Hague. As my hypotheses also concern the differences between theater groups in different regions, city distinction has to be made clear.

Location is a nominal variable, which means that the values have no big or small in size. In this research, the variable location is coded as a dummy variable, which is a nominal variable. Two dummy variables are used. *DumAms* is the distinction between Amsterdam and non-Amsterdam located theater groups. Similarly, *DumDH* tells whether a theater group is situated in The Hague or not. For both dummy variables, there are only two values, 0 and 1, with 1 stands for Amsterdam, the capital city, 0 stands for non-Amsterdam or 1 stands for the Hague, and 0 for non-the Hague. For theater located in Amsterdam, the location variable should be a combination (1, 0), and (0, 1) for those located in The Hague. As to theater groups in Rotterdam, the value would be (0, 0), as they score 0 for non-Amsterdam location and 0 for non-The Hague.

It's worth noting that 0 and 1 value does not entail big or small, but rather a distinction

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<sup>11</sup> Statbrain: <http://www.statbrain.com/>

between each other. As discussed above, Amsterdam inhabits most of the theater groups, whereas only three professional theater groups are included for Rotterdam and The Hague region. This seems to support one of the hypotheses that the theater groups in capital city are more innovative. Whether this is true or not is going to be found out later.

Besides the most significant four control variables identified above, it can be argued that more factors might have an influence on the degree of innovation of theater groups in a given city. These factors can be various including the education level, the geographical environment and the composition of population (percentage of male/female, percentage of minority group, etc). Due to limited time and effort, it is not feasible to include all possible factors as control variables, which can be labeled as one of the shortage of this research. Nevertheless, the most significant ones are included, which hopefully sufficient enough to keep the influence apart from the influence of central subsidy to the acceptable degree.

Thus, the function on *CI* and *new play* given previously can be updated into the following ones:

$$CI_{it} = f (Sub_{it}, Pop_{it}, Inc_{it}, Rep_{it}, DumAms_{it}, DumDH_{it})$$

$$New\ Play_{it} = f (Sub_{it}, Pop_{it}, Inc_{it}, Rep_{it}, DumAms_{it}, DumDH_{it})$$

With  $\begin{cases} i = (1,2, \dots 23) \\ t = (2001,2002, \dots 2008) \end{cases}$

*CI*=conventionality index, *sub*=subsidy, *Pop*=population, *Inc*=income, *Rep*=reputation, *DumAms*=dummy variable Amsterdam, and *DumDH*=dummy variable The Hague.

Table 5 gives a summary on all the variables:

**Table 4.3 List of Variables**

variables	Type	Data Description
<i>Sub<sub>it</sub></i>	Independent variable	Central funding
<i>CI<sub>it</sub></i>	Dependent variable 1	CI number
<i>New Play<sub>it</sub></i>	Dependent variable 2	The number of plays that are newly created in a given season
<i>Pop<sub>it</sub></i>	Control variable	Number of residence in a given city
<i>DumAms<sub>it</sub></i>	Control variable	Amsterdam
<i>DumDH<sub>it</sub></i>	Control variable	The Hague
<i>Rep<sub>it</sub></i>	Control variable	Number of hits on the website of a given theater group

$Inc_{it}$	Control variable	Average income (52 weeks) in a given city
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With all preparation work done, the following chapter 5 comes to the use of Stata program for analyzing the database. Here our hypotheses are to be tested.

## 5. Analysis

The previous chapters have constructed the theoretical framework on cultural goods, innovation as well as government subsidy. Furthermore, the methodological overview on variables is also given in chapter 4. With all preparation work done, the coming two chapters aim at using the Stata program to test our two hypotheses raised in Chapter 3, which are as follows:

*Hypothesis One--Government subsidies received each year by theater groups positively influence the innovativeness of their productions.*

*H<sub>1</sub>: with other factors controlled, the amount of government subsidy received negatively affects the conventionality index score of theater groups.*

*H<sub>2</sub>: with other factors controlled, the amount of government subsidy received positively influences the percentage increase of new plays in theater groups.*

*Hypothesis Two--Theater groups located in the capital of Netherlands are more innovative in terms of their productions than theater groups located in Rotterdam and The Hague.*

*H<sub>3</sub>: with other factors controlled, theater groups in Amsterdam score low in conventionality index than theater groups in Rotterdam and The Hague.*

*H<sub>4</sub>: with other factors controlled, theater groups in Amsterdam witness a higher percentage increase of new plays than theater groups in Rotterdam and The Hague.*

For this panel and longitudinal dataset, I choose to use Stata program for statistical analysis so as to test the hypotheses. For the following verification, I intend to take following steps:

Firstly, it is meaningful to have a general overview of all data. This helps us not only to have a better understanding of all observations of variables, but also enable us to check missing values and typo mistakes. For this, I will use the “summarize” command in Stata.

Secondly, I will use that is correlation command to investigate the overall associations between variables. The advantage of this test lies in the fact that it shows results of associations between one and another. This association is not causal, which makes it

interesting to compare with other test results that are coming up.

Thirdly, ordinary least square model (OLS regression) is used, the result of which can show us the limited causal association between variables. This result is interesting for later comparison.

Fourthly, fixed-effect model and random-effect model are used in Stata. The results generated here are crucial and central result for this research, as the results demonstrate causal relations which can directly test the hypotheses and thus answer the research questions. Comparison between these results and OLS regression results are also made.

Lastly, Hausman test is used in order to control errors that might occur in the FE & RE tests. Hausman test can tell us whether FE or RE test is more suitable for the research at hand. With this, we can then better investigate the casual relations by focusing on either FE or RE model.

### 5.1 Panel data Description and Stata Program

As mentioned in Chapter 3 that, the data collected forms up a panel dataset, which means that the dependent variables in this dataset can change and vary between each other in two dimensions: time sequence dimension and case dimension in this case. This is to say that, the value of *CI* and number of new plays changes when the year changes and when the theater group changes. The dataset also forms up a longitudinal dataset, as it captures the observations over a regular time series from 2001 to 2008.

After inputting all data<sup>12</sup> in Stata, I execute “summarize” command in order to generate an overall view of all variables. The following data description table is shown:

**Table 5.1 Summary of all variables**

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Id</i>	184	12	6.651349	1	23
<i>Year</i>	184	2004.5	2.29754	2001	2008
<i>Sub</i>	184	139013.5	164237.5	0	568562.5
<i>Newplay</i>	184	2.994565	2.879164	0	15

<sup>12</sup> See appendix for all detailed data

<i>CI</i>	169	1.958994	1.390082	1	12
<i>Rep</i>	184	423.1848	836.2022	10	4050
<i>Pop</i>	184	1444095	28733.75	1394353	1482287
<i>DumAms</i>	184	.7391304	.440307	0	1
<i>DumDH</i>	184	.1304348	.3377001	0	1
<i>Inc</i>	184	13175	558.9315	11600	13900

It can be seen that, for most variables, there are 184 observations in total, except for *CI*, for which 169 cases are shown in the data. The 15 missing data can be explained as follows: In the actual calculation, the situation exists that in a given year, a theater group does not have programs, or the name of the playwright is not given. In this case, no data is recorded.

It is interesting to notice that, the variable “subsidy” varies between 0 and 568562.5, with a mean of 139013.5 and standard deviation of 164237.5. This means that, on average, around 140,000euros of subsidy are granted to every theater group in each year. The highest amount is 568562.5euros. 0 stands for non government funding in a period for a certain theater organization. As to reputation, the minimum number of hits is 10, and the highest is 4050, which is entitled by Het Nationale Toneel theater group in The Hague. It can be seen that between theater groups, some enjoys quite significant amount of attention, whereas some are not so much. The mean is 423.1848 and the standard deviation is 836.2022. *DumAms* and *DumDH* are two dummy variables, the value of which are either 1 or 0. The value does not measure size, but indicates whether a theater group is located in Amsterdam (1, 0), Rotterdam (0, 0) or The Hague (0, 1). As to income, there is not much difference between cities, as the standard deviation is within reasonable range, when compared to the mean. From the table, it can also be seen that in general the conventionality index of all theater groups varies between 1 and 12, with a relatively low average. As to the number of new plays, the scores varies between the range 0 to 15, which indicates that, the highest number of new plays rehearsed by a certain theater group is 15, and there are cases when there is no new repertoire designed or rehearsed by a theater group in a given season.

This description shows that, in general the data are quite complete, with few missing

values for the variable *CI*. This makes the calculation later more reliable.

### 5.2 Correlation and OLS Regression Model

The function models of *CI* and new plays were given at the end of chapter 4, which are as follows:

$$CI_{it} = f (Sub_{it}, Pop_{it}, Inc_{it}, Rep_{it}, DumAms_{it}, DumDH_{it})$$

$$\text{With } \begin{cases} i = (1, 2, \dots, 23) \\ t = (2001, 2002, \dots, 2008) \end{cases}$$

$$New\ Play_{it} = f (Sub_{it}, Pop_{it}, Inc_{it}, Rep_{it}, DumAms_{it}, DumDH_{it})$$

These models show that the value of *CI* and new plays is under the influence of the following factors: Subsidy, population, income, reputation and location (whether it's located in Amsterdam, Rotterdam or The Hague). Among all the factors, the amount of subsidy is suspected to have the most crucial impact, and thus is the main independent variable. The rest factors need to be controlled in order to test the causal relationship between subsidy and *CI* and *newplay*.

Following the summary of variables, it is interesting to have an overall test of correlations between variables. A correlation test looks into the superficial relations between two variables. Therefore, it is a relation that could be changed when other factors are changing.

By using the “correlate” command, the following table can be generated:

**Table 5.2 Correlation Table**

	<i>Sub</i>	<i>Newplay</i>	<i>Pop</i>	<i>Rep</i>	<i>DumAms</i>	<i>dumDH</i>	<i>Inc</i>	<i>CI</i>
<i>Sub</i>	1.0000							
<i>Newplay</i>	0.4519	1.0000						
<i>Pop</i>	0.0278	-0.0442	1.0000					
<i>Rep</i>	0.4766	0.2973	0.0032	1.0000				
<i>DumAms</i>	0.0918	-0.0640	-0.0066	-0.5206	1.0000			

<i>DumDH</i>	0.1729	0.2841	-0.0171	0.5421	-0.6486	1.0000		
<i>Inc</i>	0.1579	0.0924	0.5410	-0.0503	0.2870	0.1091	1.0000	
<i>CI</i>	0.0365	-0.0938	0.1589	0.0283	-0.0918	0.0696	0.0518	1.0000

Obs=168

The correlation result for *subsidy* and the number of *newplay* is 0.4519, as shown in the table. This result demonstrates a positive and significant correlation between the two. In other words, when subsidy increases, the number of *newplay* is also anticipated to increase to a relatively significant degree. This is in adherence to the sub-hypothesis 1 that is proposed. Comparatively, the correlation between subsidy and conventionality index is less significant, with a result of 0.0365. It is still positive, as the result is above 0. When the amount of subsidy increases, a less significant growth of *CI* number of theater groups is expected.

Nevertheless, as explained above, correlation result reflects the relations between two variables, but it does not reveal causal relations. Due to the appearance of other factors, the real relation between two variables can easily be overlooked. In order to test the causal relations, I first use the OLS (Ordinary Least Square) regression to test the four sub-hypotheses respectively. OLS regression, also called ordinary least square regression is the basic linear regression test that is used to detect the casual relation between two variables. Then, I use fixed-effect model and random-effect model to further test the hypotheses by treating the data as panel data. The definition and differences of fixed-effect model and random-effect model will be explained in the following part when they are first used. For error control, I use Hausman test to check whether fixed-effect model is more appropriate for my research or not.

The first set of sub-hypotheses is as follows:

*H<sub>1</sub>: with other factors controlled, the amount of government subsidy received negatively affects the conventionality index score of theater groups.*

*H<sub>2</sub>: with other factors controlled, the amount of government subsidy received positively influences the percentage increase of new plays in theater groups.*

With *CI/Newplay* been the dependent variables and subsidy been the independent one, the function can be further described into:

$$y_{it} = \theta_i + x'_{it}\beta + \varepsilon_{it}$$

This is a regression model.  $y_{it}$  Represent the dependent variables, which is either *CI* or *new plays* in this research.  $x'_{it}$  stands for the factors which are *sub*, *pop*, *inc*, *rep*, *DumAms* and *DumDH*. These factors can also be called regressors in Stata.  $\theta_i$  is random individual-specific effects, and  $\varepsilon_{it}$  is the error term. Based on the relation between  $\theta_i$  and  $x'_{it}$ , two quite different models for the  $\theta_i$  can be distinguished. These two models are the fixed-effects and random-effects models, which will be addressed later.

It is necessary to keep in mind that, when used for panel data, OLS regression is not able to calculate on both a time-dimension and id-dimension. It takes all observations in one dimension. This is to say that, for our case, OLS regression treats the 184 observations as either 1 theater in 184 years, or 184 theaters in 1 year. This shortcoming of OLS regression makes the use of fixed-effect model and random-effect model necessary. Nevertheless, OLS regression can give an overview.

Take the number of new plays for example. The OLS regression shows the following results:

**Table 5.3 OLS Regression *Newplay***  
**. Regress *newplay sub pop rep dumAms dumDH Inc***

<i>newplay</i>	Coef.	Std. Err.	T	P> t	[95% Conf. Interval]	
<i>Sub</i>	7.35e-06	1.46e-06	5.04	0.000	4.47e-06	.0000102
<i>Pop</i>	-5.11e-06	8.20e-06	-0.62	0.534	-.0000213	.0000111
<i>Rep</i>	-.0000453	.0003317	-0.14	0.891	-.0006999	.0006092
<i>dumAms</i>	.2100825	.7510573	0.28	0.780	-1.272097	1.692262
<i>dumDH</i>	2.055045	.873567	2.35	0.020	.3310982	3.778992
<i>Inc</i>	-.0001083	.00048	-0.23	0.822	-.0010555	.0008389
<i>_cons</i>	10.37182	9.499203	1.09	0.276	-8.374448	29.11809

Number of obs = 184 F (6, 177) = 9.98 Prob > F = 0.0000 R-squared = 0.2528

It can be seen from the regress output that, the factors are jointly statistically significant, as the overall F statistic of 9, 98 have a p-value of 0,000. Meanwhile, much of the variation is unexplained with  $R^2=0, 2528$ . Individually, only two out of six factors have statistically significant impact on *newplay*. These two are *sub* and *dumDH*, as the p-value for the two is below 0, 05.

Three out of the six variables that are *sub*, *dumAms*, *dumDH* have positive influences on *newplay*. It is quite surprising that *pop* as well as *inc* are tested to have negative impact on the number of new plays, though the result is not significant (p=0,534 and 0,822 respectively). Similarly, reputation also shows small negative but not significant result.

The coefficient of  $7.35e-06$  for *sub* implies that the number of new plays increases by 1 when the amount of subsidy increases respectively, but with a very mild degree. This is to say that, the OLS regression result supports the  $H_2$  that government subsidy has positive impact on the number of new plays. It's worth noticing that the two dummy variables play a relatively important role in determining the number of new plays, especially the *dumDH*.

Similar OLS regression test can be ran for *CI* as well. Nevertheless, as mentioned above that, OLS regression test cannot distinguish on year-dimension, nor on id-dimension, a higher level regression is necessary. Fixed-effects model and Random-effects models are two most useful one for panel data.

### 5.3 Fixed-Effects (FE) model & Random-Effects (R) models

FE and RE model are the two basic regressions for panel data. The difference between fixed-effects and random-effects are quite distinctively concerned  $\partial_i$  showed in the function model above. Despite the terms, in both cases individual-level effects ( $\partial_i$ ) are random. According to Cameron & Trivedi (2009:231), the difference between the two lies in the fact that “fixed-effects models have the added complication that regressors (independent variables) may be correlated with the individual-level effects so that consistent estimation of regression parameters requires eliminating or controlling for the fixed effects”. This is to say that, in fixed-effects model, though both  $\partial_i$  and  $\varepsilon_{it}$  are

random and can be seen as error terms,  $\partial_i$  is related to the independent variables, whereas in the random-effects model,  $\partial_i$  is not associated to the change of independent variables, and thus is pure subject to error. Therefore, in random-effects model,  $\partial_i$  can be part of  $\varepsilon_{it}$ .

Thus, among the two models, whether fixed-effect model or random-effect model is more suitable is dependent on the nature of the panel data. For fixed-effects model,  $\partial_i$  is possible to be correlated with  $x'_{it}$ , which means that the value of  $\partial_i$  is changed as the value of  $x'_{it}$  changes. But  $x'_{it}$  is not related to  $\varepsilon_{it}$ , which stands for pure error during the research.

Hausman test is an error control test that analyzes whether FE or RE model is better suited for a research. But it is only possible when both FE and RE results are shown.

### 5.3.1 Verification of $H_1$

The sub-hypothesis 1 goes as follows:

*H1: with other factors controlled, the amount of government subsidy received negatively affects the conventionality index score of theater groups.*

For H1, the dependent variable is *CI* and independent variable is *Sub (subsidy)*. Fixed-effect and random-effect models are firstly implemented in Stata by using the “xtreg, fe” and “xtreg, re” command. The following table shows all result:

**Table 5.4 Regression Result *CI***

Dependent variable: *CI* (Conventionality index)

	OLS Regression	FE model	RE model
<i>Constant</i>	-8.994436 (0.105)	-11.66238** (0.027)	-9.539296* (0.077)
<i>Sub</i>	6.98e-07 (0.3930)	4.22e-06 (0.476)	6.62e-07 (0.483)
<i>Rep</i>	-.0001509 (0.417)	*	-.0001511 (0.482)
<i>Inc</i>	-.0000809 (0.772)	-.0002856 (0.290)	-.0001221 (0.654)
<i>DumAms</i>	-.3485827 (0.419)	*	-.3099294 (0.517)
<i>DumDH</i>	.1603388 (0.748)	*	.1936592 (0.729)

<i>Pop</i>	8.47e-06* (0.082)	.0000116** (0.015)	9.21e-06* (0.052)
<i>P-value</i>	0.3615	0.0568	0.3585
<i>R squared</i>	0.0396	0.0515	0.0473

\*\*\*Statistically significant at the 1% level.

\*\*Statistically significant at the 5% level.

\*Statistically significant at the 10% level.

Overall, no matter which test used, all the regressions indicate insignificant result in testing the impact of government subsidy on *CI* score, as the p-value for the tests are all above the 5% significance level. As to the variables separately, the influence of subsidy for *CI* is seen as not significant, with relatively low coefficient. This shows that, in explaining the change of *CI*, the factor of subsidy does not express noticeable power. The reason would be various: firstly, data on subsidy is limited to two funding periods, which limits the significance of any possible change. Secondly, it is often argued that the amount of subsidy provided may not directly link to a certain year. The amount of subsidy is usually decided before the year starts. Due to this incentive, it can be anticipated that sometimes subsidy does not immediately have an impact on a given year, but rather on the year earlier or later. For this, the panel data cannot test this impact.

Moreover, a value of above zero for the coefficient of subsidy denotes that a positive impact, which means that under the prompt of subsidy increase, the score of conventionality index is also increasing. A larger *CI* score indicates that in programming, a theater group is more conventional in that it confines the choices of playwrights to the choices similar as other theater groups. As to other control variables reputation, income and *dumAms* all show negative impact, but not at a significant level. This is to say that, the error effect could play a noticeable role that the result shown in the table is rather biased.

Given the analysis, it is important for us to test which regression is best suitable for this panel data, as differences do show between each regression result, though it is not significant. Hausman test is used here for verification.

By saving the FE as well as RE results in Stata, the command “Hausman fixed” helps to generate the Hausman test. The Hausman test works in the following way:

Hauman test compares the result from FE test with RE test. It assumes a hypothesis ( $H_0$ ) that difference in coefficients (between FE result and RE result) is systematic and the result from RE test is consistent and efficient. This  $H_0$  is then compared with another hypothesis ( $H_a$ ) that random effects would be inconsistent. “Under the null hypothesis that individual effects are random, these estimators should be similar because both are consistent” (Cameron&Trivedi, 2009:260). Thus, through comparison,  $H_0$  can be accepted or rejected. If  $H_0$  is accepted, RE model is better suitable for the data, and if  $H_0$  is rejected, FE model is a more efficient test.

The following is the Hauman test result for  $H_1$ :

**Table 5.5 Hausman Result  $H_1$**

Coefficients				
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
<i>Sub</i>	4.22e-06	6.62e-07	3.56e-06	5.84e-06
<i>Pop</i>	.0000116	9.21e-06	2.42e-06	*
<i>Inc</i>	-.0002856	-.0001221	-.0001636	*

b = consistent under  $H_0$  and  $H_a$ ; obtained from xtreg

B = inconsistent under  $H_a$ , efficient under  $H_0$ ; obtained from xtreg

Test:  $H_0$ : difference in coefficients not systematic

The above Hausman test result shows that,  $H_0$  cannot be rejected. Thus, the null hypothesis that random-effects model is consistent and efficient can be accepted. This means that, the RE result for testing this hypothesis is more accurate for the panel dataset of this research.

Based on the RE test result in table 8, the following conclusion can be obtained for  $H_1$ , which is as follows:

**Result: based on OLS regression, FE model as well as RE model, our  $H_1$  that government subsidy received negatively influences the CI score is rejected.**

\*\*\*\*\*

### 5.3.2 Verification H<sub>2</sub>

H<sub>2</sub> is as follows:

*With other factors controlled, the amount of government subsidy received positively influences the percentage increase of new plays in theater groups.*

The dependent variable is the number of new plays, and the independent variable is the amount of government subsidy. As the verification of H<sub>1</sub>, similar tests including OLS regression, fixed-effects and random-effects models are done for testing this H<sub>2</sub>, of which the following table shows the result:

**Table 5.6 Regression results *Newplay***

Dependent variable: *Newplay* (the number of new plays)

	OLS Regression	FE model	RE model
<i>Constant</i>	10.37182 (0.276)	10.52418 (0.177)	10.55534 (0.171)
<i>Sub</i>	7.35e-06*** (0.000)	.0000122 (0.173)	7.71e-06** (0.006)
<i>Rep</i>	-.0000453 (0.891)	.000545 (0.857)	-.0000739 (0.910)
<i>Inc</i>	-.0001083 (0.822)	-.000055 (0.887)	-.000059 (0.878)
<i>DumAms</i>	.2100825 (0.780)	*	.1093702 (0.935)
<i>DumDH</i>	2.055045** (0.020)	*	1.968615 (0.220)
<i>pop</i>	-5.11e-06 (0.534)	-6.05e-06 (0.364)	-5.65e-06 (0.391)
<i>P-value</i>	0.0000	0.5501	0.0100
<i>R squared</i>	0.2892	0.2166	0.2526

\*\*\*Statistically significant at the 1% level.

\*\*Statistically significant at the 5% level.

\*Statistically significant at the 10% level.

As analyzed above in table 8 that, the result of OLS regression shows that, the impact of government subsidy on the number of new plays is indeed positive and significant, with a

P-value under 1% level. Individually, *DumDH* also has statistically significant impact on *newplay*, as the p-value is below 0,05.

Compared with OLS regression, there are quite a lot of differences in the result. The first striking difference is that, overall, the influence is not significant anymore, as the P-value is 0,55, much bigger than the significance level of 0,05. Moreover, the influence of government subsidy becomes insignificant as well, with a p-value of 0,173, though the coefficient is positively higher. This is to say that, though with every increase of 10,000 euros in subsidy, the number of new plays yielded by theater groups increases by 1,22 plays, but this result could be biased due to inevitable errors in the calculations, and thus is not significant.

It is worth noticing that in the FE model, the two dummy variables are dropped. This is easy to understand in that *dumAms* and *dumDH* are the same for theaters in one region. As the data is declared as time-series data which means that the statistic program will automatically treat all observations as 23 cases that are investigated through 8 years of time, and the other variables including subsidy, population, reputation, dummy variables are unique for a certain theater group in a given year. Therefore, *dumAms* and *dumDH* no longer have any influence on the result, as the values do not vary for a theater group through the 8 years.

Here again, quite different results are demonstrated when compared to the fixed effect model. The overall p-value of 0,01 indicates that the variables combined have a significant impact on the dependent variable. As to the standard error, it is four times smaller than the one in the fixed effect model. Government subsidy again, shows strong and positive impact on the number of new plays. But similarly as the result in the OLS regression, the coefficient for subsidy is quite small, which implies a weak influence.

Similar as  $H_1$ , Hausman test is used here again for testing whether for *Newplay*, it is more suitable to use FE or RE model. As demonstrated above in table 11 that, in FE model, *Sub* does not show any significant influence on *newplay*, nor are other factors, especially the two dummy variables are dropped in the statistical analysis. Comparatively, RE model tells much. The weak impact of central subsidy is demonstrated to be significant at a 5% level.

The following is the result of Hausman test.

**Table 5.7 Hausman Result H<sub>2</sub>**

Coefficients				
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
<i>Sub</i>	.0000122	7.71e-06	4.51e-06	8.47e-06
<i>Rep</i>	.000545	-.0000739	.0006189	.0029453
<i>Pop</i>	-6.05e-06	-5.65e-06	-3.97e-07	9.14e-07
<i>Inc</i>	-.000055	-.000059	4.05e-06	.000042

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

RESULTS: THE NULL HYPOTHESIS CANNOT BE REJECTED.

The Hausman result shows that the null hypothesis that random effects would be consistent and efficient cannot be rejected, thus it proves to be a better model in this case for my panel data.

As discussed above, government subsidy demonstrates positive impact on the number of new plays produced by theater groups. The coefficient of government subsidy is statistically significant at 5% level. As to the control variables, all of them demonstrate insignificant results as all p-values are above the 5% level. In particular, reputation, income as well as population show negative impact on the number of new plays, which is quite unexpected. The negative impact indicate that with the increase number of hits, the growth of average income, the development in population, the creative side of theater groups which when reflected in their production of new repertoires is decreasing. The occurrence of such situation may be due to data specific problems. The time series of the panel data is limited to 8 years of time, which implies that the change of income and population in a given city is not very big. As to reputation, a fixed score is recorded for a given theater group through the 8 years due to lack of information for previous years. This might also bias the result as it cannot fully reveal the real situation.

Based on the random-effects model, it can be concluded for the second sub-hypothesis

that,

**Result 2: with other factors controlled, the amount of government subsidy received positively affects the number of new plays of theater groups is accepted.**

H<sub>1</sub> and H<sub>2</sub> are two sub-hypotheses for my main hypothesis. They evaluate the influence of central subsidy on the degree of innovativeness from two perspectives: the conventionality index and the number of new plays. To make a summary here, it can be concluded that, for my 1<sup>st</sup> hypothesis that,

*Hypothesis One--Government subsidies received each year by theater groups positively influence the innovativeness of their productions.*

The amount of central subsidy granted to each theater group does not strongly, nor significantly related to the degree of innovativeness of theater groups when we investigate their conventionality in using playwrights. But the central subsidy is significantly, nevertheless weakly, related to the number of new plays produced in theater groups. This indicates that, subsidy directly from central government tended to influence the quantity aspect of innovation more than the quality aspect, which is measured by conventionality index.

\*\*\*\*\*

### 5.3.3 Verification of H<sub>3</sub> & H<sub>4</sub>

My hypothesis two focuses on the differences between the three cities chosen. I anticipate that relatively speaking, Amsterdam is more innovative than Rotterdam and The Hague in terms of repertoire production. Therefore, my sub-hypotheses are as follows:

*H<sub>3</sub>: with other factors controlled, theater groups in Amsterdam score low in*

conventionality index than theater groups in Rotterdam and The Hague.

*H<sub>4</sub>*: with other factors controlled, theater groups in Amsterdam witness a higher percentage increase of new plays than theater groups in Rotterdam and The Hague.

For testing these two sub-hypotheses, the *dumAms* is used to indicate cities. As discussed above, that theater groups located in Amsterdam are all coded as 1, and in other cities (Rotterdam, The Hague) coded as 0. Therefore, the data can be seen as two sets: one set (theater groups located in Amsterdam) with *dumAms* as 1, and the other (theater groups located outside Amsterdam) as 0. In this way, *dumDH* is dropped. This is because that, I treat Rotterdam and The Hague together as comparison to Amsterdam, and the value of *dumDH* does not make a difference anymore when *dumAms* is defined, since the distinction is only between Amsterdam and Non-Amsterdam.

After putting all observations into two sets according to the value of *DumAms*, separate regressions tests for the two sets need to be run individually for comparison. Similar as the tests above, OLS regression, FE and RE models are also used here for these two sub-hypotheses. By defining *dumAms* as equal and above 1 or below 1, the following results can be obtained:

**Table 5.8 Regression Result H<sub>3</sub>**

Dependent variable: *CI*

	OLS		FE Model		RE model	
	<i>DumAms</i> ≥ 1	<i>DumAms</i> < 1	<i>DumAms</i> ≥ 1	<i>DumAms</i> < 1	<i>DumAms</i> ≥ 1	<i>DumAms</i> < 1
<i>constant</i>	-10.95246 (0.037)	-3.64999 (0.807)	-14.28415** (0.002)	6.966981 (0.659)	-12.16073** (0.013)	-3.64999 (0.806)
<i>Sub</i>	1.13e-06 (0.128)	-2.10e-06 (0.673)	-3.76e-06 (0.469)	.0000329* (0.066)	1.02e-06 (0.249)	-2.10e-06 (0.671)
<i>Rep</i>	-0.0006566 (0.319)	.0002182 (0.731)	dropped	dropped	-0.000737 (0.335)	.0002182** * (0.729)
<i>Inc</i>	-0.0000272 (0.917)	.0000998 (0.873)	-0.0002949 (0.200)	-0.0002515 (0.753)	-0.0001114 (0.650)	.0000998 (0.872)
<i>Pop</i>	9.10e-06* (0.000107**)	3.14e-06 (0.000107**)	-6.69e-06 (0.000107**)	-3.76e-06 (0.000107**)	.0000107** (0.000107**)	3.14e-06 (0.000107**)

	(0.046)	(0.795)	(0.403)	(0.797)	(0.012)	(0.793)
<i>p-value</i>	0.0691	0.9854	0.0031	0.3041	0.0387	0.9859
<i>R-squared</i>	0.0711	0.0086	0.0001	0.0023	0.0696	0.0086

\*\*\*Statistically significant at the 1% level.

\*\*Statistically significant at the 5% level.

\*Statistically significant at the 10% level.

It can be seen that overall, the explanatory power of subsidy for the *CI* score of theater groups is not significant, with all *p*-values above the 5% significance level. Nevertheless, there are some interesting points that worth noticing. Let us look at the results individually for the set where *dumAms* is bigger or equals to 1. For the impact of subsidy, both of OLS regression and RE model show positive results, which indicates that with the increase of subsidy, the *CI* score has a tendency to increase at the same time. Whereas in the FE model, subsidy demonstrates to be negatively correlated with *CI*, which is in consistence with the sub-hypothesis. As for the theater groups located outside Amsterdam, OLS and RE results is insignificantly negative, with a mild minus 0 score for the coefficients. It can be expected that with the increase of subsidy, the *CI* score will demonstrates a slow decrease, within a mild range.

The impact of government subsidy however, is quite different for theaters located in Amsterdam and those in Rotterdam and The Hague. A general overview is that, subsidy affects *CI* score in Amsterdam more positively than in Rotterdam and The Hague, which is quite contradictory as we anticipated. As explained above, the amount of subsidy granted more or less stimulate the conventionality of theater groups on Amsterdam, which when reflecting in programming, is the use of playwrights that are similar as other organizations. Whereas, theater groups in Rotterdam and The Hague are somewhat more “open-minded”, as the *CI* score is becoming lower when the amount of subsidy rises. The cause of this could be various. Data limitation is one reason. This result may be also due to the crowding-out theory explained in chapter 3, which indicates that the large amount of subsidy can work reversely and “crowd out” the incentive to innovate for cultural organizations.

As for H<sub>4</sub>, regression results are shown in table 14:

**Table 5.9 Regression Result H<sub>4</sub>**

Dependent variable: *Newplay*

	OLS		FE Model		RE model	
	<i>DumAms</i> >=	<i>DumAms</i> <	<i>DumAms</i> >=	<i>DumAms</i> <	<i>DumAms</i> >=	<i>DumAms</i> <
	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>
<i>constan</i>	13.74538	10.81027	12.16844	8.724265	13.48167	10.2137
<i>t</i>	(0.215)	(0.445)	(0.199)	(0.531)	(0.151)	(0.436)
<i>Sub</i>	9.51e-06***	.0000152*	9.89e-06	.0000168	8.57e-06***	.0000168*
	(0.000)	* (0.003)	(0.370)	(0.300)	(0.001)	* (0.027)
<i>Rep</i>	-	-.0006113	.0005245	Dropped	-.0038735	-.0007781
	.0056466***	(0.318)	(0.869)		(0.047)	(0.442)
	(0.000)					
<i>Inc</i>	-.0001956	.0006615	-.0000916	.0000412	-.0001194	.0002438
	(0.722)	(0.274)	(0.844)	(0.954)	(0.798)	(0.708)
<i>Pop</i>	-6.06e-06	-.0000118	-6.69e-06	-5.38e-06	6.69e-06	-7.61e-06
	(0.522)	(0.306)	(0.403)	(0.668)	(0.404)	(0.494)
<i>p-value</i>	0.0000	0.0000	0.6952	0.7720	0.0155	0.0010
<i>R-squared</i>	0.2344	0.6031	0.1109	0.5694	0.2264	0.5986

\*\*\*Statistically significant at the 1% level.

\*\*Statistically significant at the 5% level.

\*Statistically significant at the 10% level.

As to the index of *newplays*, the factor *sub* proves to be positively related to the number of new plays produced by a given theater group. This is in agreement with our sub-hypothesis. All coefficients for *Sub* in OLS regression, FE model and RE models are above 0, yet very big, meaning with the increase of subsidy, the number of new plays is also expected to grow to a mild degree. Apart from FE model, the results for OLS regression and RE model are statistically significant, with p-value under the 1% significance value. It is worth noticing that the coefficients for *dumAms*<1 is in all cases

higher than the coefficients for  $dumAms \geq 1$ , which means that when the amount of subsidy granted is increasing, the number of new plays by theaters in Rotterdam and The Hague increases to a higher degree than by theaters in Amsterdam. This is again, quite unexpected. As to other variables, reputation, income as well as population all show relatively low and insignificant correlation with *newplay*. Similar problem is found here that coefficients are quite small, which may be due to the reasons explained above.

With the regression results demonstrated above, it is necessary to use Hausman test to verify FE and RE models. The following two tables show the result respectively for  $H_3$  and  $H_4$ :

**Table 5.10 Hausman Test Result  $H_3$**

Coefficients								
	(b) fixed		(B) random		(b-B) Difference		sqrt(diag(V_b-V_B)) S.E.	
	DumAms $\geq 1$	DumAm $s < 1$	DumAms $\geq 1$	DumAm $s < 1$	DumAms $\geq 1$	DumAm $s < 1$	DumAms $\geq 1$	DumAm $s < 1$
<i>Su</i>	-3.76e-06	.000032	1.02e-06	-2.10e-	-4.79e-06	.000035	5.10e-06	.000016
<i>b</i>		9		06				6
<i>Po</i>	.0000143	-3.76e-	.0000107	3.14e-06	3.57e-06	-6.90e-	*	8.14e-06
<i>p</i>		06				06		
<i>In</i>	-	-	-	.000099	-	-	*	.000497
<i>c</i>	.0002949	.000251	.0001114	8	.0001836	.000351		7
		5				3		

b = consistent under  $H_0$  and  $H_a$ ; obtained from xtreg  
 B = inconsistent under  $H_a$ , efficient under  $H_0$ ; obtained from xtreg  
 Test:  $H_0$ : difference in coefficients not systematic

**Table 5.11 Hausman Test Result  $H_4$**

Coefficients								
	(b) fixed		(B) random		(b-B) Difference		sqrt(diag(V_b-V_B)) S.E.	
	DumAms	DumAm	DumAms	DumAm	DumAms	DumAm	DumAms	DumAm

	$\geq 1$	$< 1$	$\geq 1$	$< 1$	$\geq 1$	$< 1$	$\geq 1$	$< 1$
<i>Su</i>	9.89e-06	.000016	8.57e-06	.000016	1.32e-06	1.20e-08	.0000107	.000014
<i>b</i>		8		8				1
<i>Re</i>	.0005245	*	-	*	.004398	*	.002503	*
<i>p</i>			.0038735					
<i>Po</i>	-6.69e-06	-5.38e-	-6.69e-06	-7.61e-	1.33e-09	2.23e-06	*	5.61e-06
<i>p</i>		06		06				
<i>In</i>	-	.000041	-	.000243	.0000278	-	*	.000284
<i>c</i>	.0000916	2	.0001194	8		.000202		9
						6		

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

It can be seen that, all results indicates, that difference in coefficients are not systematic. Thus, random-effects models are more efficient in both cases for testing whether Amsterdam is more innovative than other regions (Rotterdam and The Hague). In the case of *CI* measurement, *Sub* failed to explain both the *CI* value for Amsterdam and non-Amsterdam regions. The result is neither strong nor significant. Nevertheless, the positive figure (1.02e-06) for *DumAms*  $\geq 1$  suggests that the amount of subsidy is more likely to have a positive association on *CI* score of theater production. Whereas this figure is negative (-2.10e-06) when *DumAms*  $< 1$ . This tells us that, with the increase amount of central subsidies, unlike situations in Amsterdam, the *CI* score of repertoire production is more likely to decrease, thus tend to be less conventional in choosing playwrights.

As for the case of *Newplay*, the second measurement for innovation, the RE result demonstrates positive and significant causal relation between the amount of government subsidy and the number of new plays for all theater groups located in and outside Amsterdam. This proves that central subsidy does in this aspect have a crowd-in effect on theater organizations. Nevertheless, the comparison between *DumAms*  $\geq 1$  and *DumAms*  $< 1$  indicates that, theater groups located in Rotterdam and The Hague react to the central subsidy more actively than theater groups in Amsterdam. The coefficient of *DumAms*  $< 1$  is 0, 0000168, whereas the coefficient for *DumAms*  $\geq 1$  is only 8.57e-06, much smaller. Thus, it can be expected that, with the same amount of subsidy increase,

theater groups in Rotterdam and The Hague tend to produce more new repertoires than those in Amsterdam.

Based on the above analysis, the following conclusion can be easily drawn:

**Result 3: Based on the above analysis, H<sub>3</sub> that with other factors controlled, theater groups in Amsterdam score low in conventionality index than theater groups in Rotterdam and The Hague, as well as H<sub>4</sub> that with other factors controlled theater groups in Amsterdam witness a higher percentage increase of new plays than theater groups in Rotterdam and The Hague can be rejected.**

To sum up, for my second hypothesis that,

*Hypothesis Two--Theater groups located in the capital of Netherlands are more innovative in terms of their productions than theater groups located in Rotterdam and The Hague.*

This hypothesis is proved to be not reality-based, as no matter with CI or the number of new plays as measurement of innovation, theater groups in Amsterdam scored lower than theater groups in Rotterdam and The Hague. This result is significant. Thus, we can conclude that, in the period from 2001 and 2008, though central subsidies granted to theater organizations in Amsterdam was higher than that for Rotterdam and The Hague, nevertheless, this did not result in high degree of innovation in theater organizations located in Amsterdam, as compared to those in Rotterdam and The Hague, when CI and number of new plays were used to evaluate the innovative spirit in theater groups.

By now, the research is finished. The following part continues with the conclusion for the research, where the findings of this research are compared with previous researches. Also, the limitations are discussed as well, which hopefully may provide valuable information of further studies on this topic in the future.

## 6. Conclusions

### 6.1 What has been found out

By now, the research to investigate the influence of direct government funding on the degree of innovativeness in programming by theater groups is almost finished. It can be seen from the analysis that, overall, the number of new plays in a given theater group is more likely to be affected by the amount of government subsidy received. This result is applicable to all three cities analyzed. However, when effort is made to see if this result is more significant for Amsterdam, the capital city, than for Rotterdam and The Hague, no supporting result is shown. As to the conventionality index, government subsidy does not demonstrate very strong explanation power, which is quite contradictory to our hypotheses.

Despite the challenges, the results we find are still quite satisfactory. So far, the variable of government subsidy is tested to be of little significant correlation with the dependent variables. This result is not in consistent to our expectations and hypotheses, and therefore, to answer our research questions raised at the beginning of the paper that:

- 1) What is the impact of government subsidy on programming innovation?

It is evident that given a theater size of 23 in Amsterdam, Rotterdam and the Hague, while narrowing the scope to the past 8 years from 2001-2008, the amount of direct government subsidy to theater groups does not show recognizable influence on the degree of innovativeness in a given theater group in the same year, though econometric calculations do show that the number of new plays is positively but weakly influenced.

- 2) Is there difference between Amsterdam, Rotterdam and The Hague in terms of innovation?

Differences do exist between cities. But unlike what has been expected that, Amsterdam, being the capital city of performing arts in the Netherlands, is more innovative in terms of repertoire production, the contrary result has been verified. Inhabited less number of theater groups, Rotterdam and The Hague has demonstrated to

be more innovative than Amsterdam. This innovativeness is shown in their diversified selection of playwrights and their increasing production of new repertoires, even though the difference is quite small. This result is based on the 23 cases in 8 years time in the three cities.

This result is, when compared with previous researches, shares differences and also similarities. On the similar topic and also with conventionality index as measurement for program innovation, O'Hagan & Neligan (2005:15) found out that, in the non-profit English theater sector, "the higher the state subsidization of a theatre, the more non-conventional will be its repertoire", though at the same time O'Hagan & Neligan (2005:14) also warned that "all econometric results using such small samples of data must be treated with caution".

Similarly, J. Pierce (2000) investigated the case of America. His focus was the opera companies in America. Interesting enough, Pierce (2000) found out that, government subsidy can encourage or discourage innovation, depending on the source of funding. He (2002:59) argued that, though both government funding and civic culture affect the programmatic behavior of American opera companies, local government funding encourages program conventionality, while federal support such as the NEA encourages program risk-taking. Compared to central subsidy, local government funding appears to be the strongest force in promoting conventional opera productions (Pierce, 2002:59).

Whereas in the case of German public theaters, with a sample of 127 public theaters, Neligan (2006) used conventionality index as a measurement for innovation, in order to investigate how public funding influenced repertoire choice. Surprisingly, Neligan (2006:1118) found out that, "the results presented in this study show a fairly low explanatory power of the model with the data used...Furthermore, there is no empirical evidence that the explanatory power of the model can be improved by using a non-linear model." This result is quite in consistence with the findings of this research.

At the same time, Mark Schuster (1999) investigated the impact of government on programs from a different angle. In his paper *The Other Side of the Subsidized Muse*, he draws people's attention to public funding in the form of indirect aid, particularly tax-based indirect aid. This might give new inspiration on cultural policy making. Indeed, according to Schuster, more researches are under conduction in this direction.

Apart from this, other researches on repertoire innovation are also done, which looked into extra possible factors that may influence innovation. Dimaggio & Stenberg (1985:107) focused on US nonprofit theaters and argued that, “access to potential patrons rich in cultural capital appears to make theatre repertoires more innovate, while dependence upon the market (as opposed to grants and contributions) is associated with greater conformity of repertoire.”

Whereas, the empirical research on Flemish theaters by Werck & Heyndels (2007) demonstrates that demand of repertoires is influenced by output characteristics. Marta Zieba (2009) discovered that, for German public theaters, quality factors are important influences on demand for the performing arts. In particular, Daniel Urrutiaguer brought the attention to art managers in theaters, for which he argued that under budgetary constraints, managers tend to imitate the program choices of others, using technical criteria of excellence as a reference. This indicates a conservative attitude in repertoire production in French public theaters.

## ***6.2 Political Implication***

Based on the discussion above, it is clear that careful choices need to be made in supporting arts sector. To associate with Chapter 3 where the role of Dutch government and the outline of Dutch cultural policy are discussed, it can be argued that, the direct form of public support, particularly in the form of granting subsidy, does not necessarily result in a more innovative performing arts sector.

As suggested by Mark Schuster (1999), indirect support arts can be more efficient way. Government support can take various ways, which can generally be divided into two groups that are direct support and indirect support. Tax deduction, meaning that “individuals and firms’ gift to the arts may be exempt from tax” (Frey, 2003:390) proves to be also a very substantial part of public support, as it encourages donations to arts organizations from individuals or companies. It seems enlightening for cultural makers to think more on this level in regulating performing arts sector.

As to the situations in cities, though Amsterdam enjoys the fame of being the capital of performing arts in the Netherlands, Rotterdam and The Hague demonstrate a more

flexible and vibrant production. This is reflected in the decreasing *CI* value and increasing number of new plays in terms of increase of subsidy. This is indeed a good thing, as I believe a balanced arts sector is more desirable than a sector that is dominantly shown in one city.

### 6.3 What's Lack

Like all other social researches, for this research, there exist places where further improvement can be made in the future. Major challenges of this research come from two broad aspects: method and data.

From the aspect of method, firstly, conventionality index and the number of new plays are chosen as measurement of innovation, in particular, the program innovation. As discussed extensively in Chapter three, that there are two dimensions when talking about innovation: content and form. Given the subjective aspect of the notion “innovation”, the index of conventionality as well the number of new plays is sufficient but incomplete measurement of innovation. This limitation can lead to noticeable bias on the final result, particularly when the candidate size is not very big.

*CI* measurement is used in similar researches before by O'Hagan & Neligan (2005), who explained that “while programming standardization and conformity in a given arts field are related terms, they only convey some sense of lack of innovation if all organizations tend to program the same (types of) pieces”, and “conventionality index is not the perfect index for innovation”. The method itself is an imperfect index for program innovation as it takes only the name of the playwright into consideration when calculating the frequency of a given playwrights appearing in other theater production. As also discussed in previous chapters that, program innovation, should also include the creativity used in a given title through years, which means that for a certain repertoire, the creative thought used in arranging and rehearsing different performances should also be seen as an effort to innovate.

The form of presenting stage performances can also be counted as a type of artistic innovation. Chapter three shows, that innovation can take various forms, among which the following three are examples:

1. The use of contemporary pieces
2. The combination of multidiscipline
3. Creative interaction with audiences

These three dimensions can further be expended into categories such as the repertoires from different countries, different origins, different languages, etc. These aspects cannot however, be encompassed in the measurement of innovation in this research due to practical reasons, which indeed is a pity. As to the combinations of multidiscipline and creative interaction with audiences, it is also hard to be evaluated by any concrete measurement, due to its high subjectivity. This type of innovation in quality is hard to be captured in conventionality index, which is indeed a pity.

The examples above clearly suggest that the traditional way of conceptualizing and measuring innovation solely in terms of repertoire is at best incomplete, which unavoidably form a limitation to this research.

What can be seen as an “amendment” in this research is that, the number of new plays is added as a second index for innovation in quantity. It can be expected that an innovation oriented theater group engages more in producing new repertoires instead of repeating what is produced seasons before. With this measurement, I aimed at investigating whether the increase of government subsidy significantly influence the increase or decrease of new plays. The acceptance of first sub-hypothesis proves that there exists indeed a causal relation between the two.

Another possible bias in testing the influence of government subsidy on innovativeness, as also discussed in Chapter 4 lies in the argument that, the public funding in a given year does not necessarily have a direct impact on the programming in a given year, but rather the influence could exist in previous or later production period. Theater groups usually prepare for the subsidy application a couple of seasons earlier, and normally a rough plan of programming is drafted before actually receiving the funds. This implies that, due to the application procedure, a general schedule of program is usually set up before a production season, which might be based on the idea that the funding is a given. Thus, the actual production might be influenced by the “upcoming” public funding received the next season. A concern like this indicates that, to test the causal relation between subsidy and program innovation, it might induce inaccuracy when the amount of subsidy in a

given year is used as independent variable and the innovation index in the same year as dependent variable.

As to the data, which is usually a headache for social researchers, it also incurs limitations for the research. In this paper, I collected relatively sufficient data not only for dependent and independent variables, but also for control variables. Nevertheless, one of the drawbacks in terms of the data is perhaps the relatively short funding period. Due to the short time of conducting the master research as well as practical reasons, two funding period that is from 2001-2004 and 2005-2008 are in focus. A short period may lead to less significance of change in programming, which in turn, results in not significant regression result. Comparatively, in previous researches, longer subsidy periods and more theater cases are observed. For example, in the paper by Werck & Heyndels (2007) on Flemish theaters, a panel data of 59 Flemish theaters in the past 20 years are included in the research, the result of which indicate more significant results, and it was found out that, the nature of theater productions has evolved considerably over time (Werck&Heyndels, 2007:26).

The second drawback of data is that, missing data on program title or playwrights posted an obstacle when calculating the conventionality index and the number of new plays. Due to incomplete data, certain theater group is been eliminated from the research, and productions in a certain year cannot precisely reflect the real situation, which might bias the result.

As to the amount of government funding, the Cultuurnota from the ministry of Education, Culture and Science are the authorial documents, but the shortcoming lies in the fact that only the whole amount of subsidy of four years are given in the document. It does not specify the separate amount in the individual four years. Therefore, I chose to use the average amount through the years. This average method is also used when I collect the data for the control variable “income”, as the data for 2007 and 2008 is not available, and the average amount from 2005&2006 is used as an approximate for 2007&2008.

#### *6.4 For Future Study*

The limitations depicted above indicate that the econometric results have to be treated with caution. What can be seen as interesting for future study is various, among which the following three directions are to my mind most appealing:

- Separating sources of public funding: This research focuses on the subsidy from the central ministry. However, the real situation is that, for a lot of theater groups, local or regional funds are also granted to these organizations, and sometimes it consists to a crucial part of all funding. Therefore, another direction of future research is to distinguish the funding according to the resources, and look into the individual effect while taking others under control. This issue was also mentioned by Frey (1999) in his paper. An empirical research in the Netherlands is a promising topic.
- Enlarging the scope and scale of research: one limitation of this research is that, only 23 theater groups in 8 years time are focused on. Though the statistical result is helpful for answering the research questions raised at the beginning of this paper, it would be more desirable if more theater groups and longer funding periods can be included. This is not practically feasible given the scope of this mater thesis. Hopefully in future studies on similar topics, the scope and scale can be extended.
- Combining quantitative research with qualitative methods: what is also particularly interesting is to add qualitative aspects in further research on the efficiency of public funding. These qualitative aspects can be in the form of interviewing art managers on how public funding received are used in the daily life of a theater organization, enquiring audience on program satisfaction, etc. In this way, the analysis can be furthered, enriched, and thus more inspiring.

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## Appendices

### Appendix A

### List of Variables

variables	Data Description
Conventionality Index	CI number
Number of New plays	The number of plays that are newly created in a given season
Amount of subsidy	Central funding
Population	Number of residence in a given city
Location	The city where the theater group is based
Reputation	The number of hits for the website of a given theater group
Income	Average income (52 weeks) in a given city

**Appendix B Amount of Subsidy**

Theater \ Year	2001-2004	2005-2008	Increase
frascati	221,393	221,500	107
de nieuw amsterdam	552,193	552,250	57
de theatercompagnie	2,187,453	1,837,500	-349,953
dood paard	466,867	467,000	133
gasthuis werkplaats & theater	182,918	243,000	60,082
het toneel speelt	189,650	600,000	410,350
huis aan de amstel	713,556	713,750	194
nieuw west	134,336	134,500	164
orkater	1,127,156	1,127,250	94
stichting het syndicaat	300,549	247,750	-49,794
suver nuver	457,486	407,500	-49,986
teatro munganga	196,066	196,250	184
theater RAST	205,556	275,750	70,194
theatergroep carver	358,650	358,650	0
theatergroep wederzijds	299,189	299,250	61
toneelgroep amsterdam	2,274,136	2,274,250	114
warner & consorten	124,680	124,750	70
bonheur theaterbedrijf rotterdam	0	175,000	175,000
het waterhuis	97,315	97,500	185
hotel modern	62,593	22,750	160,157
het nationale toneel	2,090,148	2,090,250	102
Stella Den Haag	284,993	285,000	7
Toneelgroep de Appel	0	300,000	300,000
In total	12,526,883	13,051,400	524,517

**Appendix C Theater Groups & Reputation Index**

Theater Group Name	Number of Hits on website
Amsterdam	
frascati	123
de nieuw amsterdam	34
de theatercompagnie	376
dood paard	136
gasthuis werkplaats & theater	10
het toneel speelt	10
huis aan de amstel	136
nieuw west	10
orkater	408
stichting het syndicaat	10
suver nuver	508
teatro munganga	140
theater RAST	10
theater Terra	136
theatergroep carver	614
theatergroep wederzijds	10
toneelgroep amsterdam	320
warner & consorten	57
Rotterdam	
bonheur theaterbedrijf rotterdam	136
het waterhuis	1,402
hotel modern	632
The Hague	
het nationale toneel	4,050
Stella Den Haag	180
Toneelgroep de Appel	447

**Appendix D Conventuality Index & Number of New Plays**

Theater Group Name	2001		2002		2003		2004		2005		2006		2007		2008	
	CI	NP														
frascati	0	0	0	0	2	6	1.15	6	1.25	5	1.4	7	1.6	9	2.57	1
de nieuw amsterdam	1.5	3	1	3	1.45	10	1.75	3	1.33	2	1.33	2	1.33	3	1.5	1
de theatercompagnie	1	8	1.71	5	1.6	8	1	3	4	3	2.2	3	1.67	3	6	1
dood paard	2.33	2	1	2	1.25	5	2.5	2	4	2	1.67	4	1.6	4	1.5	3
gasthuis werkplaats & theater	1.11	10	1	9	1.25	1	1.29	15	1.75	10	2.33	5	1.6	8	1.33	0
het toneel speelt	1	2	1.67	4	2	2	2	3	0	0	2	3	4.5	3	2	2
huis aan de amstel	1	2	1.75	4	2	6	2	2	1.5	3	1.75	4	1.2	4	2	1
nieuw west	2	0	4	1	4	0	0	0	0	0	1	1	9	1	0	0
orkater	1	2	0	0	1	1	0	2	2	1	1.5	2	1	1	1	2
stichting het syndicaat	1	4	1.14	3	2	3	2	3	2.29	6	1.75	4	1.71	6	1	2
suver nuver	1	0	0	0	1	1	1	1	1	0	0	0	1	1	0	0
teatro munganga	1.5	1	1.67	1	2	1	2.33	1	1	1	1	1	1	1	1	0
theater RAST	1	2	1	3	1	1	1	1	2	2	2.67	4	2.33	3	2	0
theatergroep carver	2	1	0	0	22	3	0	1	0	0	3	1	0	0	0	0
theatergroep wederzijds	1.4	2	1	2	1.75	4	1.5	2	2	0	1	3	2	2	1.57	7
toneelgroep amsterdam	1.75	8	2.14	7	2.14	8	2.33	6	4	7	3	10	1.85	11	3.4	1
warner & consorten	1	1	2.5	3	3.5	2	6	1	2	0	2	1	0	0	3	0
bonheur theaterbedrijf rotterdam	1.2	4	1	1	1	1	1.5	3	1	5	1	2	2	4	1.75	2
het waterhuis	1.33	2	3	1	2	1	4.5	1	3	2	2	1	1.33	4	2	1
hotel modern	2	1	0	0	12	1	1	2	1	1	1	0	1.33	2	1.33	0
het nationale toneel	2	7	1	8	1.17	11	2	8	1	7	3.5	8	2.71	12	1.83	4
Stella Den Haag	1.5	3	1.75	5	3	0	2.33	4	1.67	3	1.75	4	2.2	3	0	0
Toneelgroep de Appel	2.25	3	1.67	6	1.33	1	1	6	2.29	7	3.8	3	1.67	6	7.5	3