

## **Performing arts attendance and geographic adjacency**

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### Keywords

Cultural economics, willingness to travel, distance as a disincentive attendance, performing arts.

### Summary

Much research has been conducted on the willingness of audiences to travel to access the performing arts. Most studies are based on surveys filled in by arts consumers. The general findings indicate an average distance that audiences are willing to travel for performances within certain genres like theatre, dance and concerts. In this study we inverted conventional methodology and worked the other way around. We studied the databases of several theatres, which feature different programming and serve different geographical areas. In this research, the willingness to travel varies from 15 to 145 kilometres for 75% of the audience. We found a strong “distance decay” of the audience for the various genres. Distance decay is the decrease of the part of the population that consumes a good or service related to an increase in distance. In fact, geographic accessibility appears to be an important variable in the demand for performing arts product. As a result of the research, it can be stated that if the objective of cultural policy is to maximise the total number of visitors to the performing arts, in many cases it is preferable to present performances in multiple locations, thereby creating wide geographic accessibility. Notwithstanding the additional transportation and marketing costs to implement mobile productions and the possible compromising of overall production standards due to the constraints of traveling.

### Introduction

The Netherlands makes a distinction between the use of theatres and concert halls on the one hand and the production of performances on the other hand. The national government provides subsidies for companies that perform across the country, whereas local governments provide subsidies for venues. Traditionally, most Dutch performing companies travel across the country to perform in large and medium sized cities. This is different from countries where theatres are producing companies that perform in the same home venue throughout the year. The culture of touring in the Netherlands reflects the reality that the Netherlands is not a centralised country in which the capital or the largest cities are the only centres of the arts. Moreover, the short distances between cities in the Netherlands make traveling relatively easy for performing companies. In addition to touring, several companies

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perform throughout the year in the same venue. In order to optimise the effect of government subsidies, one must examine the desired geographical spread of cultural institutions. When focusing on achieving the best quality performing arts, it might be advisable to allot significant subsidy to an anchor national institution located in one place, for instance a national opera company. Potential attenders from disparate points of origin are expected to travel to that particular location. In contrast, if the objective of cultural policy is to maximise the number of cultural consumers, is it preferable to invest subsidy in centrally located companies or in touring and local companies spread throughout the country? The answer depends largely on the willingness of the audience to travel.

#### Previous research

Traditional variables which impact demand for theatre tickets include price, total experience cost (including ancillary expenses such as transportation, child care, and meals), price of substitution goods, income, time, quality and utility (Withers, 1977; Luksetic & Lange, 1995; Globerman, 1977; Felton, 1989; Throsby, 1979). With regard to utility Bockstael (1987) stated that time costs and travel time are constraints for maximising utility. Verhoeff (1993) pointed at differences in attractiveness of performances (utility) and differences in costs (travel costs, opportunity costs) given all other exogenous variables like income, available time, cultural knowledge and social recognition when attending a performance. He found a large variability in the distances from home addresses to the visited theatres. Seaman (2006) mentions that higher costs of traveling can have negative effects on performing arts consumption. Other research on the willingness to travel (Tobler, 1970; Eldridge and Jones, 1991) also shows that the demand for goods and services declines exponentially as distance increases. Boter, Rouwendal and Wedel (2005) found a different decay of willingness to travel related to visiting museums. They found a linearity between the utility of a museum and the disutility of traveling. They compared the travel time of various segments of visitors using a museum card. McKercher (2008) stated that a decrease of the willingness to travel can be observed when the “gravitational” pull of a proximate place is higher than that of a more distant location. Performing arts organizations who present performances of high quality tend to be concentrated in urban areas. Waterman, Schechter and Contractor (1991) point out that high quality performing arts require a large local population to generate sufficient artistic talent and consequent audience. Willis, Snowball, Wymer and Grisolia (2012) relate the willingness to travel to the consumer surplus. The consumer surplus is equal to the inverse of the travel cost coefficient they found. Forrest, Grimes and Woods (2000) take consumer surplus as the difference between the distance a person is willing to travel and the distance a person actually has to travel. They combined zip code data with information on the socio-economic profiles of zip codes and found that for a regional theatre, socio-demographic variables and composition of the population have a relatively larger influence on average attendance than distance to the theatre. In their research 44% of the consumer surplus comes from residents in areas around 12-20 kilometres from the theatre. Most of these areas lie within neighbouring

municipalities. Zuzanek and Lee (1985) found that on “short distance from a theatre” in a “middle sized city” (in this study London) social status is a more important proxy than distance to explain the demand for theatre. With regard to travel behaviour Lu (1998) identified socio-demographic and time variables which are allocated to activity types like household-sustaining, recreation and social activities. Waterman et al. (1991) recognise the importance of social pressure as a reason to attend performing arts while income, distance and age can be constraints to attend. In addition, various dimensions of spatial and psychological (social, temporal) distance play a role in explaining travel behaviour (Lieberman, 2007). Is the journey to the arts event itself a factor? Is it associated with enjoyment or is it only a necessity? The willingness to travel in the opinion of Forrest et al. (2000) partially depends on the reason for traveling. They refer to the “zonal travel cost model” that reflects the difference in reasons to travel. Traveling to a forest or an incidental journey to a theatre can be more exciting than daily commuting to work. Incidental traveling is a part of the total experience. De Rooij (2013) conducted research on loyalty. He segmented coincidental spectators, incidental spectators, interested participants, core audience, and friends. The segments are based on differences in attitudinal (how they think about the particular theatre) and behavioral (whether they actually buy tickets) loyalty. (Co)incidental spectators in general live relatively further away from a theatre than interested participants and core audience. Coincidental and incidental spectators are more artist- or performance- than venue-oriented. They may visit several theatres and follow their favourite artists. Interested participants and core audience are more venue-oriented. They visit their favourite theatre for the programming and the services but also simply because they live nearby. If it is a theatre’s objective to attract visitors from more distant locations, in the opinion of De Rooij (2013) it is preferable to invest in high quality performances instead of in programs geared towards increasing audience loyalty. Waterman et al. (1991) found that media attention can extend the geographical audience reach of a theatrical production. Media coverage influences not only the demand for tickets in the performing arts and but also the consumer’s choice between attending live arts, watching TV, listening to recorded music or making other cultural choices. The choice between live participation versus consuming culture digitally is influenced by the quality, distance, geographical location, and physical and financial constraints to attending the live event. Waterman et al. (1991) also found that consumption of arts via the media appears more attractive for non-urban citizens. Forrest et al. (2000) provide econometric evidence of a negative relationship between distance and willingness to travel but a positive relationship between the price of a ticket and the distance the audience is willing to travel. Does this suggest a causality between price and willingness to travel? It might be that more attractive performances result in higher prices and in a correlating higher willingness to travel. The founder of research on economical, geographical travel behaviour Walter Christaller (1933) perceived that every product and service – which also includes theatre performance – has its own scope, described as its own “attraction area”. This is defined as the distance the consumer is willing to travel to access the events. Christaller found that variables impacting the quantity of sold goods by a supplier include the

nature of the goods, the size of the population, and the distance to the next supplier. He inspired our method of segmenting research in the performing arts in different kinds of genres and in different levels of exclusiveness. We conclude that in addition to the traditional variables such as income, ticket price, additional costs, price substitutes and utility including quality and taste, specific variables related only to the performing arts explain the demand for performing arts. Here we consider factors such as publicity, media profile, socio-economic indicators and the demographic of the target audience. These variables explain fluctuations in ticket demand on an aggregate level. On a micro level, looking at one theatre alone we can think of more defined variables such as exclusiveness and attractiveness of the program, the size of the local population, travel costs, travel time, and the appearance of substitutes and competing theatres. With regard to substitution, Gapinsky (1986) found that alternatives to performing arts are not just traditional examples like restaurants or cinemas but that the lively arts substitute for other lively arts; this indicates competition among the program of a theatre or among theatres.

## Research

The focus of this research is the influence of distance on the demand for the performing arts. In order to scrutinize the willingness of audiences to travel, researchers focused on travel distance, means of travel, travel time, and travel costs. The orientation depends on the aim of the research and the applied research method. In our methodology, we used databases consisting of home addresses. The data is collected by theatres who sell almost all of their tickets via the internet. Ticket-buyers need an account to log in and their home address is filled out in order to get an account. Some of the tickets in the research inventory are sold by a large national ticket centre who also records the home address of its buyers. The entire research inventory consisted of more than two million home addresses. We used zip codes to determine the travel distance. The Netherlands have zip codes of four digits and two characters. For research at a city level two digits are appropriate. On the scale of an area within a city or a rural area four digits are appropriate. For a precise study on street level four digits and two characters represent appropriate research protocol. For the purposes of this study, four-digit data was applied. We dealt with 12,399 different distances from a particular zip code to a theatre or concert hall. On the more detailed level of four digits and two characters more than one million distance computations would be generated. The data for this research comes from seven theatres and one concert hall in the Netherlands, namely the Royal Theatre Carré (Amsterdam), Het Concertgebouw (Amsterdam), Orpheus (Apeldoorn), Martiniplaza (Groningen), Chassé Theater (Breda), Luxor (Rotterdam), De Rotterdamse Schouwburg (Rotterdam) and the Circustheater (The Hague). The Royal Theatre Carré is a large theatre that presents large-scale spectacle performances. Het Concertgebouw is the main concert hall in the Netherlands and the home of the Royal Concertgebouw Orchestra. The Circustheater is a private theatre presenting commercial “sit-down” musicals that do not travel throughout the country. The remaining five theatres present different genres of performing arts like

fine arts (dance, theatre, opera and classical music) and/or entertainment (e.g. musical, stand-up comedians) and are focussed on a regional consumer rather than national stature. This research consists of three studies on the willingness to travel on a regional and national scale. The first study is based on the origin of the absolute numbers of visitors of three regional theatres. To analyse the willingness to travel properly we have to eliminate the differences in the size of the population. Therefore the second study concerns the distance decay of some regional theatres. Here we eliminate the size of the population per researched area. The third study shows the willingness to travel to an exclusive offered performance.

Study 1: The distance travelled to different genres in a regional theatre.

The first study provides some insight into the distance audiences are willing to travel from their places of origin to performances at regional venues.

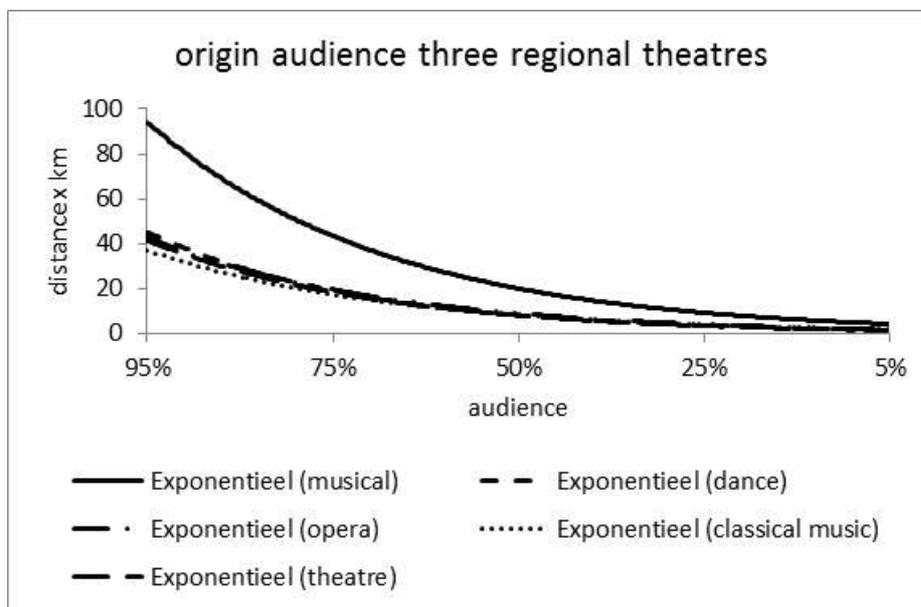


Figure 1: Origins of the audience in three regional theatres.

In this study we used the data from the 2009/2010 season of the main theatre in Breda and two specialised theatres in Rotterdam: Theatre Luxor for entertainment and the Rotterdamse Schouwburg for the fine arts. The examined performances in Breda on the one hand and the two theatres in Rotterdam on the other hand are comparable. The environment of the theatres is not comparable. The city of Breda is located in a rural area and the city of Rotterdam is located in an area with a high population density. It is interesting to note that with respect to the origin of visitors there's no difference between the both cities, there is only a slight difference between the different genres of fine arts. It is remarkable that fine arts attract visitors from a small distance compared to musical theatre. See figure 1. When looking at the various genres on a more detailed level, 75 per cent of the audience for the musical genre comes from within a distance of 42 kilometres from Breda and 29 kilometres

from Rotterdam, with an average of 33 kilometres. Here we found a significant difference in distance between a city in a rural and in an urban environment. The 95-tiel is less reliable because the last 25 per cent of tickets appeared to be bought mostly by small secondary ticketing agencies who do not keep track of the origin of their buyers, tourists, and incidental groups. In the fine arts the average distance of the 75-tiel is 17 kilometres with a range of 15-18.8 kilometres. In previous research on this topic Verhoeff (1993) has stated that 75 per cent of the theatre audience resides within a radius of 13 kilometres of the venue. Thus, the radii in this study are slightly larger for each genre, implying that the audience is willing to travel further than Verhoeff's research suggests. This difference could perhaps be explained by the fact that this study uses a dataset with more high qualitative and exclusive performances on a large scale, while Verhoeff's study included a more average offering of the performing arts. Another explanation could be the increased welfare including increased income, higher mobility and more leisure time since Verhoeff conducted his study in the 90s. Nonetheless, the distance the audience is willing to travel to the venue is not very long in either study. One might wonder what explains the differences in willingness to travel between musical and the other genres. As said, Waterman et al. (1991) already pointed out the importance of media attention. Marketing for the musical genre in the Netherlands is usually very professional. The publicity is on a national level in cooperation with the national media. This sets it apart from the other genres. Also, there are 'stars' created that the audience wants to see in real life. This national approach combined with the star status of some of the actors could increase the willingness to travel. Rosen (1981) and Ginsburgh and Throsby (2006) elaborated on the economic side of stardom. Rosen states that talent of a star is not seen in the quality of the performance but in the probability that a show will be good. It appears to be an important marketing tool. Verhoeff (1993) concluded that the willingness to travel decreases faster if performances are less conventional, more complex and/or are of lower quality. Musicals in general are perceived as more conventional than for example dance and theatre. Our study confirms the finding of Verhoeff for the musical genre. How about the other genres? Classical music and classical ballet are perceived to be conventional and complex while theatre and opera can have several combinations of complexity and conventionality (experimental drama, comedy, repertory theatre) (Verhoeff, 1993). Nonetheless, looking at the regional theatres, our research did not find a significant difference between the genres of classical music, dance, opera and theatre although they have differences in complexity and conventionality. It means that for these genres our findings do not confirm the findings of Verhoeff.

## Study 2: Distance decay

Where study 1 shows the origin of the audience, the data are influenced by the size of the population in the various areas. The elimination of this variable provides better insight in the relation between distance and the willingness to travel to a performance. Based on the zip codes of visitors of the theatres in Apeldoorn, Breda, Groningen and Rotterdam, the distance decay (tickets per 1,000

inhabitants per zip code) for three large-scale musicals is examined. Unfortunately it appeared not to be possible to do the same analysis for the genres of dance, theatre, classical music and opera because related to the spread of the population, the used zip codes for short distances are too rough. Figure 2 shows this relationship more precisely. It is remarkable that the willingness to travel shows such a strong decay. When the distance to the venue is rather short, for every 1,000 inhabitants (almost) 10 tickets are sold. When the distance to the venue increases to 20 kilometres this number is cut in half. When it becomes 40 kilometres the willingness to buy a ticket is again cut in half.

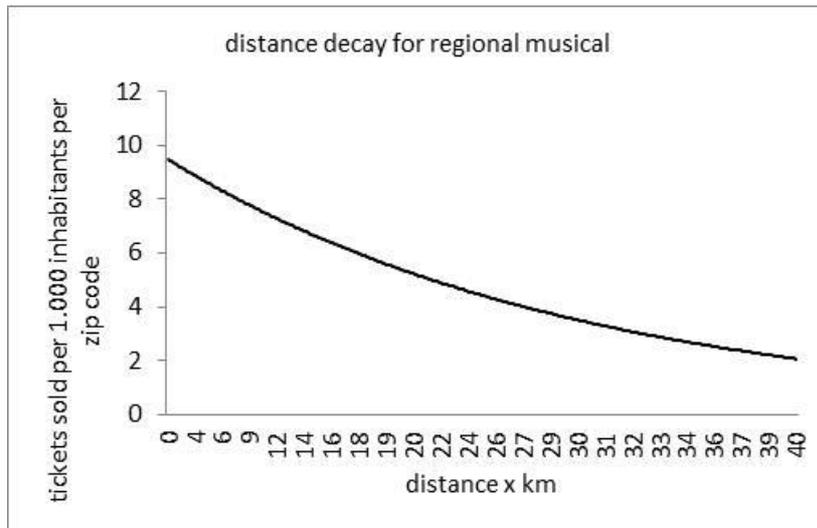


Figure 2: Distance decay for four large regional theatres – musical.

### Study 3: Distance decay for a theatre with a national scope.

Whereas the first study discusses the origin of the audience of regional theatres and the second study the origin apart from population size, the third study is focussed upon a theatre with an exclusive offer on a national scale. The Circustheater is an exceptional theatre in the Netherlands. The shows performed here do not have a final end date – they have so-called open-ended programming – and the presented musicals are not performed at another location in the country. It is said that this theatre attracts an audience more or less spread equally from all over the country. The third study tries to find out if this is true by studying the observed willingness to travel based on the data of the Circustheater.

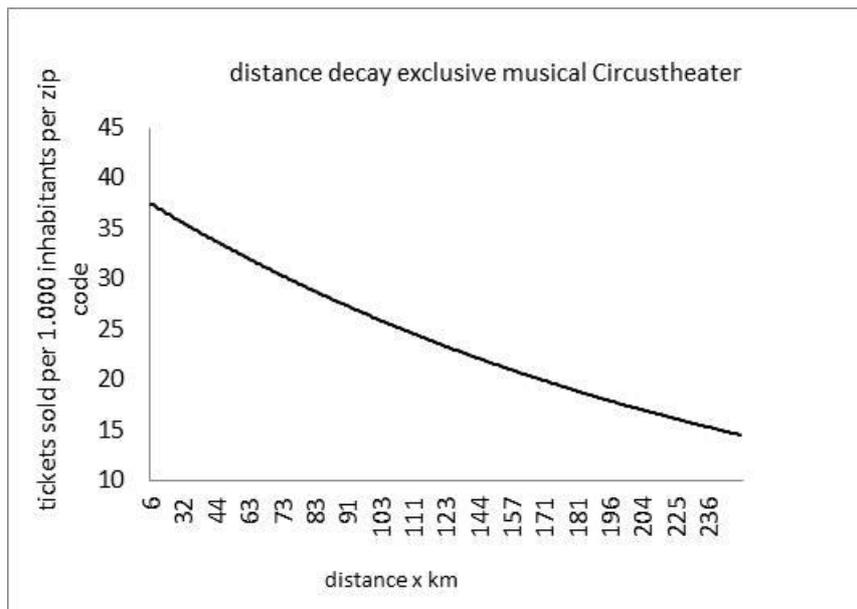


Figure 3: Distance decay of exclusive musical.

Figure 3 shows that the penetration for the Circustheater is of a higher level than the previously discussed regional theatres. This means more people from a certain distance come to see a performance in the Circustheater. The dataset consists of two musical productions, one of which ended during the study, while the other was still being performed at the time of data collection. It appears that the audience is willing to come from substantially further distances to see a performance in the Circustheater than in a regional theatre. Nonetheless, there is still a decreasing willingness to travel; the further away potential attenders reside, the less likely they are to attend. It is interesting to note in this case that this decay can not be due to the fact that the audience can see the same performance somewhere closer to home. Thus distance seems to be a variable for the demand of tickets. The correlation for the Circustheater between tickets and distance is  $-0.715$  and is significant at the 1% level. See table 1. In comparison to regional theatres, the halving of the ticket sales per 1,000 inhabitants is not seen at 20 but at 180 kilometres. This means that if the same show was to be performed at a distance of 180 kilometres from the Circustheater (in The Hague), 37 sold tickets per 1,000 inhabitants in the direct environment of The Hague would mean that at a distance of 180 kilometres away from The Hague  $37 - 18.5 = 18.5$  tickets per 1,000 inhabitants more could be sold. The total number of tickets sold would increase. The audience living near the second location who already intended to visit the musical at The Hague, would not then travel to The Hague but would alternatively attend the second more nearby location. Therefore, increasing the number of theatres presenting the same musical will alter the pattern of origin of the audience. The scope per theatre will become smaller. The absolute number of tickets sold depends on the population around the second location, but in the case of musical product, it depends also on the outer limits of the spoken Dutch language. A

simple calculation could prove whether the extra revenues outweigh extra marketing costs that come along with performing in various places.

For a proper understanding of the distance decay of exclusive musicals we may not forget that there is a spatial element involved. The distance decay of 50% occurs in a *circle* of 180 km around the theatre not at a *certain point* of 180 kilometers away from the theatre. For a show to have an optimal reach across the country, circles could be drawn on a map and the performances could be presented in the cities in the heart of each circle.

Performance	musical region (various locations)	musical capital (Carré)	musical national theater (Circustheater)	Classical music regional (Concertgebouw)	Classical music regional (Theatre)	dance regional	opera regional	average	
Average travel time x min	32.3	43.3	76.8	19.1	32.5	22.35	22.17	25.17	
Average distance x km	30.9	48.6	98.5	13.8	34.9	14.39	14.31	16.40	
Correlation travel time x min**	-0.368	-0.380	-0.721	-0.339	-0.231	-0.331	-0.307	-0.357	-0.380
Correlation distance and tickets**	-0.371	-0.380	-0.715	-0.364	-0.224	-0.339	-0.297	-0.354	-0.381
n combinations zip codes – theatre	5,832	3,216	180 <sup>1</sup>	274	164 <sup>2</sup>	886	647	857	
5%tiel x km	2.9	3.8	6.00	3.00	3.00	2.15	2.15	2.25	
25%tiel x km	9.5	17.9	44.5	3.00	3.00	3.10	3.00	4.00	
50%tiel x km	23.4	36.2	89.4	4.7	21.6	5.60	4.68	7.19	
75%tiel x km	39.3	65.3	144.6	17.9	45.6	18.05	17.95	17.68	
95%tiel x km	92.8	135.4	209.7	51.5	120	52.75	64.40	52.58	
ad 1) two digit zip codes									
ad 2) zip codes per municipality									

\*\* Correlations are significant at the 0.01 level (2-tailed).

Table 1: Distance, travel time, origins of audience 2009-2010.

As was shown in study 2, the distance the audience travels for the fine arts in the region is limited (75 per cent of the audience lives within a radius of approximately 17 kilometres from the venue). For a programme of high quality on an international scale and offering, like the Concertgebouw in Amsterdam, exclusive performances, 75 per cent of the audience travels 46 kilometres at the most. For commercial musical entertainment unavailable elsewhere (Circustheater) 75 per cent of the audience is willing to travel a longer distance, namely approximately 145 kilometres. See table 1 and figure 4. Nonetheless, in all cases when the distance increases the willingness to travel decreases. It is obvious that the more exclusive and the more attractive a performance is, the larger the scope of the genre or the venue presenting that particular genre.

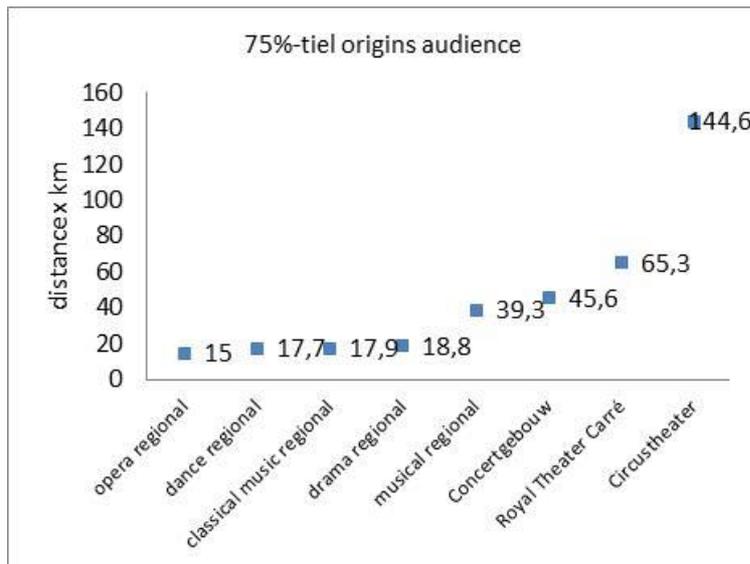


Figure 4: Origins of 75%-tiel audience of various genres.

#### Travel time or travel distance

It could be argued that examining travel time instead of travel distance could result in more generally applicable recommendations. Fortunately in addition to distance we also dealt with travel time between the various zip codes. The travel time is measured by the use of a car and depends on the kind of road and constraints like ferries. It appears that the results of the study of travel time and travel distance are equal. Also the statistical significance of both groups of data are equal. See table 1.

#### Conclusions and recommendations

This research demonstrates that the willingness of cultural consumers to travel is limited. Distance is an important factor in deciding whether or not to see a play or to go to a concert. When optimizing the impact of subsidies, from an economic perspective the data indicates that it may be advisable to support fine arts performances only when the presenting venues are 15-19 kilometres apart from each other provided that the capacity of the venue is sufficient to fulfill ticket demand in the area it serves. As a matter of practical application, venues should consider coordinating their programming on a regional level. From the audience's perspective, a cultural infrastructure populated by geographically distant venues is not optimal. Theatregoers rarely travel longer than 19 kilometres for fine arts presented by (national) performing companies in regional theatres. As a result of this, a smaller total number of visitors is reached when fine arts (including highly promoted commercial programming) is offered at a single or finite location across the country. Limiting the number of locations at which cultural product can be consumed drives down the total number of visitors to the performing arts. The phenomenon of distance decay at performances depends on genre, publicity, popularity of artists, exclusiveness and attractiveness of productions and the location of competing theatres. The findings indicate that if it is an objective of cultural policy to maximise the total number of visitors to the

performing arts, it is preferable to encourage the presentation of performances in multiple venues as opposed to concentrating them in single locations.

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