Closer yet More Distant

Exploring the Effects of Museum Cluster Spatial Inequality on Resident's Museum Attendance: A Case Study of Rotterdam's Museumpark

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Abstract: The study contributes to the research on cultural participation and its determinants. It departs from the main branch of studies on the topic, which investigates the effects of sociological factors, and approaches the issue by focusing on the role of infrastructural barriers in the individuals' patterns of cultural consumption. More specifically, it studies whether and how the policy of clustering museums affects the residents' attendance at the cluster's museums. In this sense, the study frames the research problem by using Feder's (2022) concept of access opportunity, considering audiences among the many forms of cultural participation, and adopting Rotterdam's Museumpark as a case study. The study addresses the research problem by calculating accessibility indexes for the different districts of the city of Rotterdam and using them to develop regression and correlation models, which are performed on a dataset collected by the author via survey. The hypotheses tested are relative to the existence of the relationships between the goodness of access opportunity and, respectively, the likelihood to visit a museum at least once a year, frequency of the visits, and perceived interest toward the museums. By accepting all the hypotheses, the study argues that access opportunity does affect the residents' attendance at the clusters' museums. Moreover, as the direction of these relationships turns out positive in all cases, it claims that access opportunity is directly related to the residents' attendance at said museums. In this sense, the research suggests that clustering museums might create unbalances among the residents in their participation in the city's cultural life.

Keywords: cultural participation – access – audiences – museum cluster

Introduction

Defining what the optimal provision of cultural goods and services should be is a path constellated by hurdles. The academia is divided into multiple and complex debates revolving around how to guarantee the effective and efficient supply of these unique goods and services: should the public bear its funding, or would it be better to leave it to the privates and rely on the free market (Grampp, 1989)?; what is the best decision-making approach adoptable in policymaking (Evans, 2013)?; what should be the principles guiding the provision (Négrier, 2020)?; is it even possible to reach an optimal allocation of cultural goods (Lipsey, 2007)?

The understanding of the demand for cultural goods and involvement in cultural activities is necessarily connected to all these discussions since they may all be understood as ultimately circling around the same question: how can the demand for cultural goods be satisfied in the most effective way? How is it possible to encourage the greatest number of individuals to participate in cultural activities? In this sense, a substantial corpus of studies focuses on the determinants of the demand for cultural goods and services (Bennett & Silva, 2006; Cebula, 2015). However, it is possible to see a substantial homogeneity among them; the majority was informed by Bourdieu's (1984) study on cultural participation as a means to reiterate social stratification and distinction. The issue has thus been mainly framed in sociological terms, which, despite having a sure and substantial role in the process, might not capture its complexity in its entirety. In line with this assumption, a new branch of studies developed in the early 2000s looking at how the spatial distribution of the cultural venues can affect the individuals' decision-making process relative to cultural participation (Brook, 2013; 2016; Evans, 2013; 2016). The idea behind this approach is that, alongside sociological ones, infrastructural factors also play a considerable role in people's participation in cultural life impacting on their decision-making process.

In accordance with this proposition, the present research investigates how the policy of clustering museums affects the residents' affluence. Museum clusters are widely diffused throughout Europe: there is the Museuminsel in Berlin, the Museumkwartier in Amsterdam, and the Museumqaurtier in Vienna - just to mention some of them. Policymakers are attracted by them because of their capacity to generate value for both outsiders, such as tourists or newcomers, and the city's residents through the regeneration of the designed area via culture (Van Aalst & Boogaarts, 2002). However, cultural economic policies connected to urbanist

projects have also been linked with the creation of dilemmas hindering the social and economic sustainability of the very same plans (Bianchini, 1993). Therefore, there is a need to evaluate in greater detail the effects of said policies to ensure the issuing of more informed ones through the understanding of how the desired economic and social benefits for the residents relate.

This need is further highlighted by the debate relative to what the museum institution's role in society should be, emblemized by the emergence of alternative conceptions of the institutions such as the 'ecomuseum' and the long and hurdled path that International Council of Museums faced to reach the new museum's definition. The definition reads as follows:

> A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing (ICOM, 2022).

Despite in a lower degree in respect to the definition proposed in 2019 (ICOM, 2019), it is still possible to see how the ICOM envisions the museums of the present and the future as increasingly participative, inclusive, and community-centered. Considering these new visions, it becomes even more relevant to understand how cultural policies affect cultural participation and why.

This study inquires into these criticalities by investigating whether the spatial inequality in the museums' distribution implied by the process of clustering museums results in a hindrance to attendance for the residents in more remote and less connected areas. Focusing on Rotterdam's Museumpark, the museum cluster located in the city center, the research assesses whether having better physical access – intended as the amount of time spent to reach the cultural venues – incentivizes attendance and vice versa. The study thus frames the research problem using Feder's (2022) conceptualization of access, which is distinguished by its division into four different dimensions, and by considering audiences among the many forms of cultural participation. More specifically, it focuses on the dimension of opportunity, which refers to the physical proximity of the considered venue. Feder's work is integrated by the consideration of the availability of transportation means, which determines the perception of the venues' distance by relativizing the time needed to reach them. Striving to get a deeper understanding of how infrastructural factors affect Rotterdam's residents' museum-visiting patterns, the

research question guiding the study is: *what are the effects of access opportunity on Rotterdam's residents' attendance at the museums of Museumpark?*

In order to answer it, the research calculates several Accessibility Indexes (Brook, 2016) for the Museumpark according to the different neighborhoods considered and adopts them in the development of regression and correlation analyses. In this way, it is possible to quantify the causal and relational links between access, likelihood, and frequency of attendance, so as to assess to what extent and how access affects the residents' attendance. Therefore, to answer its research question, the study tackles the following sub-questions: 1) What are the accessibility indexes of Rotterdam's districts?; 2) How does access opportunity affect the likelihood of visiting the museum cluster's museums?; 3) How does access opportunity affect the frequency of the visits to the cluster's museums?; 4) How does access opportunity affect the interest in Museumpark's museums?

The subsequent section contextualizes the case study by presenting the Museumpark and elaborating on the history of Rotterdam's reconstruction and regeneration plans. The following, divided into multiple subsections, is devoted to the review of the literature about cultural participation, the different branches of studies relative to its determinants, and how it relates to different cultural policymaking approaches. These matters are then contextualized in the urbanistic dimension of cultural policymaking and, more specifically, in the case of museum institutions and museum clusters. In the subsequent chapter, the study presents and elaborates on Feder's (2022) conceptualization of access and its different dimensions, explaining why and how it is relevant to integrate them with the availability of transportation means when investigating the audiences. Contextually, the study elaborates on the choice of focusing on the audiences and Ang's (1991) institutional approach – the stance adopted to look at them in the research. The following section presents the research design, the methodology adopted, and the hypotheses tested, and elucidates the procedures followed in the survey construction and data collection. The results of the analysis are presented, interpreted, and discussed in the light of the literature in the subsequent chapter. At last, the conclusion recaps the findings, points out the limitations of the study, and suggests possible paths for further research.

2. Regenerating Rotterdam and the Museumpark project

Heavily bombed during the Second World War due to the strategic relevance of its port, the city of Rotterdam had to face the challenge of reconstructing the city center and adjacent

neighborhoods. Oude Engberink and Miedema (2001) carefully retrace the reconstruction and subsequent regeneration efforts of the city, focusing on the policy-making approaches followed by the decision-makers and their outcomes. The reconstruction, due to the upheaval of the socialist and labourist parties as well as the absence of private alternatives, was characterized by strong statal interventionism. The process, felt as a common challenge and a civic duty, united all the parties involved – politicians, economic policymakers, and civilians. Throughout the reconstruction, all of them demonstrated a willingness to moderate their personal interests in favor of the common good, an attitude that persisted once the city was economically viable again.

In this vein, the reconstruction plan carried on in the regeneration one (Oude Engberink & Miedema, 2001). However, the economic stagnation of the 70s undermined the homogeneity of the process, which turned into subsequential yet ultimately unrelated efforts to foster social and economic growth and thus strengthen the city's economic infrastructure and quality of life. In order to contrast the recession, the regenerating efforts started to be increasingly focused on the economic backbone of the city: there was an enlargement of the harbor, the improvement of the city's accessibility via water and transportation means, the conversion of the inner-city's ruins and unused spaces into luxury houses, and the construction of cultural facilities such as museums and theatres.

Despite the belief that economic policies would have simultaneously catalyzed social development, the decision-makers issued several social policies (Oude Engberink & Miedema, 2001). Nevertheless, they were mostly finalized to favor the transition toward the labor market, also to the detriment of the social security system. The ultimate result was that, despite extraordinary economic growth, by the mid-80s, Rotterdam was facing concrete social issues determining the exclusion of an increasing part of the population from the regenerating effects. From the last years of the 80s and throughout the 90s, these issues were faced with a new series of bottom-up policies centered on these fringes' needs. Nevertheless, the result of these regeneration policies, both economic and social, was the failure to improve concretely and durably the condition of the impoverished neighborhoods. This failure was attributed to the political and administrative incapacity to integrate social development into the policies for economic regeneration, with the former remaining marginal relative to the effort to enhance economic growth (Oude Engberink & Miedema, 2001).

The Museumpark project can be positioned in between the two waves of regenerating urbanist policies as it was conceived during the first one but undertaken in the second. The original plan to agglomerate several museums in the area which used to be called 'Hoboken

Land' is dated 1974 (Het Museumpark, n.d.) and is thus attributable to the first set of policies centered on the city's infrastructure to favor the economic regeneration of the city. The 'Hoboken Land', formerly hosting the villa of the Hoboken family, had turned into an unruly area without any specific function. Nevertheless, the project was not carried on because of a shortage of funds. It was reenacted in 1987 when Rem Koolhaas was commissioned to design the Kunsthal in the Southern area of the park and what used to be the Hoboken family's house was converted into the Natuurhistorisch Museum (Het Museumpark, n.d.). In 1989 Koolhaas and the French landscape architect Yves Brunier redesigned the project starting from the concept developed by the Urban Development Center; in 1991, the Museum Boymans van Beuningen was renovated, and, in 1993, the construction of the Nederlands Architectuurinstituut - now Het Nieuwe Instituut – finalized the original plan. In the same year, the Chabot Museum was opened as a private initiative of the Grootveld family (Over Het Chabot Museum, n.d.). In addition to these, the Depot Boymans van Beuningen opened its doors to the public in 2021, thus modifying the final configuration of the park (Het Museumpark, n.d.).

Almost the entirety of museums is reportedly funded by the public, even if in different ways and entities: Het Nieuwe Instituut (and thus Huis Sonneveld) indicate the Dutch Ministry of Culture as their main financial partner (Nieuwe Instituut, n.d.); Boijmans van Beuningen and Kunsthal both have Rotterdam's municipality among their main funding partners (Museum Boijmans van Beuningen, n.d.; Kunsthal Rotterdam; n.d.); at last, the Chabot museum – founded as private – also reports a moderate contribution from the Dutch government (Over Het Chabot Museum, n.d.). The only institution that does not declare the retrieval of public funding is the Natuurhistorisch Museum.

Leaving the Depot aside, by looking at the years in which the project was reprised and completed, the Museumpark project can be considered as part of the bottom-up policies oriented to enhance social development which were engaged in reaction to the scarce results achieved by the former set of maneuvers. The duality ascribed to the nature of the project, intended both as a means to boost the economic fabric of the city as well as mitigate social issues, is fundamental for this study. The underlying ratio behind the research is that, similarly to what Oude Engberink and Miedema (2001) suggest regarding the regeneration policies in general, the Museumpark project does not equate economic and social interests, leaning more toward the former.

3. Cultural participation: the different policymaking approaches, the link to urbanism, and the case of museum clusters

Having introduced the case study, it is necessary to better understand the different topics involved in it. In this sense, the present chapter reviews the literature relative to cultural participation, how it has been studied, how it is and has been approached in cultural policymaking, and how it relates to urbanistic decision-making. Relatively to this, the arguments for and against the clustering of cultural venues will be considered. This overview is finalized to frame the research in the larger debate between different and sometimes conflicting approaches to cultural policymaking, which are ultimately the basis of the geographical placement of the museum institutions in the city. This will help to better understand the policy-related and societal relevance of the topic. In the following section, the different perspectives adopted in the study of the determinants for cultural participation will be reviewed, going from the sociological studies to the ones focusing on more infrastructural and external factors, thus positioning the study in its more specific branch of literature.

3.1. Understanding cultural participation and its determinants

Cultural participation is an umbrella term comprehending various activities related to cultural goods (Unesco, 2009; Dupin-Meynard & Villaroya, 2020). As such, giving a precise and concise definition of it is a complex task, rendered even more difficult by the fact that the definitions ascribed to it tend to be influenced by the nature and interests of the institutions commissioning the research (Schuster, 1987). Nevertheless, there is shared agreement about two characteristics of cultural participation: firstly, more than the simple attendance to cultural venues and events, it must be considered an integral part of the experience and enjoyment of everyday life; secondly, it always is a conscious act (Unesco, 2009). The European Statistical System developed for statistical purposes the ICET model, which distinguishes four broad categories of cultural participation: 1) Information, comprehending the activities of search, collection, and diffusion of information relative to culture; 2) Communication and community, relative to the social interaction relative to cultural issues and participation in cultural networks; 3) Enjoyment and expression, relative to the enjoyment and production of the various forms of cultural expression and; 4) Transaction, indicating the activities of purchase of art and tickets

for cultural events (ESSnet, 2011). By investigating the impact of infrastructural factors on attendance to museums, the present research focuses mainly on the category of enjoyment and expression.

The research on the determinants of cultural participation is extensive, and Bourdieu's (1984) study on taste has proven to be extremely influential on it (Brook, 2013). Bourdieu (1984) examined the variations in taste and artistic consumption from a sociological perspective. He argued that aesthetic appreciation and cultural taste are socially constructed through inheritance from their family and education, refuting Kant's claim that it has an innate nature (Jenkins, 1992). The conclusion is that socioeconomic class and educational attainment determine the type and amount of cultural consumption that an individual engages in (Bourdieu, 1984). The disparities in social origin and educational attainment establish the individuals' amount of cultural capital, which in turn determines their 'habitus' - the individuals' personality and conduct - producing their judgments and behaviors (Jenkins, 1992). This perspective, in which cultural participation is directly correlated to the individual's education and social provenance, has been proven empirically with different focuses, such as diversity (Bennett & Silva, 2006), education (Damen & Klaveren, 2013), and status signaling and cognitive competency (Notten et al., 2014).

In addition to the study of sociological factors' impact on cultural participation, a branch of studies casts the light on more external factors' role in it by considering what could be the influence, for example, of terrorist attacks (Gergaud et al., 2018), weather (Cuffe, 2018; Cellini & Cuccia, 2019), and spatial collocation of the cultural venues (Brook et al., 2010; 2013; 2016; Evans, 2013; 2016). By focusing on the issues relative to the spatial distribution of the cultural venues, this study contributes to the latter branch of academic production. The research in this field does not exclude nor underestimate the relevance of sociological factors in the analysis of cultural participation but rather underlines how infrastructural factors play a significant role alongside these variables (Brook et al., 2010; 2013).

In this sense, Brook and colleagues (2010) argue that people's lives are necessarily linked to the urban environment they live in, which shapes their behaviors and decisions. In the context of cultural participation, and more specifically, arts attendance, this translates into a greater probability of attendance to cultural venues for the people who enjoy a better level of provision in their area, as attending the venues is more likely to become a social norm then transmitted to the future generations (Brook et al., 2010). Therefore, there is a tight connection between sociological factors and the urban environment people live in. This connection is also described by the term neighborhood effects, which refers to the different ways in which the area

where the individual resides shapes their existence (Galster, 2011). In this sense, the research investigating how the spatial distribution of cultural venues influences attendance does not contradict or substitute the studies grounded on sociological theories relative to social stratification but rather complements them by analyzing "how they operate in space, and how access to services and other spatial factors interact with them" (Brook et al., 2010, p. 23). This approach's validity is strengthened by the empirical results relative to libraries, cinemas, art centers (Evans, 2016), museums, and art galleries (Brook et al., 2010), which all point out significant positive effects of physical proximity on their attendance.

Within this field of research, the concept of 'cultural mapping' is particularly relevant. Cultural mapping is an approach to the study of cultural participation that relies on the use of Geographic Information Technologies (GIT) to perform the mapping of cultural resources and needs (Gibson et al., 2010). The ratio behind this approach is that by highlighting the relevance of the spatial dimension in cultural processes and activities, the adoption of GIT in the cultural field can help visualize and measure from additional perspectives the existing research problems relative to the world of culture. The term Geographic Information Technologies encompasses four different types of mapping technologies, namely Geographic Information Systems (GIS), Geographic Positioning Systems (GPS), remote sensing, and mapping on the internet. Their applicability is wide, as the variables considered in the mapping process can be selected according to the researcher's purposes (Evans & Foord, 2008). The application of GITs in cultural research allows us to understand more deeply space in its political and corrective nature and conceptualize it "in dynamic relation to culture" (Gibson et al., 2010, p. 346).

Other fundamental and recurring concepts in this type of study are those of 'access' and 'accessibility'. Potentially referring to different types of factors conditioning the access to and fruition of cultural goods and venues, ranging from socio-economical to spatial ones, accessibility is frequently assessed in the research on cultural participation and considered in the cultural policymaking environment (Evans, 2016). In this sense, the studies on the determinants of cultural participation use different access dimensions as frameworks to understand the phenomenon. As in the present research's case, the studies investigating the geographical distribution of cultural venues focus in greater detail on spatial accessibility, thus addressing the individuals' decisional freedom relative to participation in cultural activities (Brook, 2016).

This research contributes to the existing literature on the role of spatial accessibility in cultural participation by adding further empirical evidence through the analysis of a new case study, the museum cluster of the city of Rotterdam. This case study can be particularly

interesting due to the implications that can be found in terms of policymaking's approach and its replicability in other cities with the same museums' geographical concentration.

3.2. Cultural policymaking and cultural participation

Cultural policies play a fundamental role in the development of cultural participation in many different ways ranging from more visible measures such as tax deductions and funding (Frey, 2020) to implicit ones like strategic urbanism (García, 2004). Négrier (2020) identifies four cumulative paradigms that have driven the actuation of cultural policymaking in Europe starting from the development of proper welfare states and contextual focus on the public enjoyment of the arts and cultures. In chronological order, the first is the paradigm of cultural excellence, according to which the purpose of cultural policymaking lies in the unbiased support and refinement of the quality of the arts. Under this approach, the participatory dimension is necessarily bound to the quality of the outputs, which makes it problematic for the subjectivity of taste and the social, political, and aesthetic influences on it. However, as the main focus of the policies is on the quality of the arts itself, participation falls in second place. The following paradigm to emerge was that of cultural democratization, whose purpose is to render high-quality art and cultural goods, which would not be available without governmental support, accessible to the largest number of people (Négrier, 2020). In this case, the main issues emerged in the paternalistic approach of the policymakers, whose cultural proposal not always encountered the consumers' demands. This issue is directly addressed by the subsequent paradigm to emerge, namely the paradigm of cultural democracy, which detaches itself from the quality argument and focuses on granting recognition and support to every social group of the population. In this sense, it departs from the idea of a hierarchy of arts and underlines the active role that citizens as direct stakeholders of cultural policies can play in cultural participation. In a similar way, the last policy paradigm to surface - the cultural economic paradigm – broadens the stakeholders considered by the policies issued. Increasingly inspiring policies between the 70s' and the 80s, this approach is centered on the economic impact directly attributable to the cultural sector as well as its externalities (Négrier, 2020). Its emergence is also referable to the increasing need to justify the public expenses in cultural practices with a low level of participation.

By looking at these paradigms jointly, it is possible to see how the purposes guiding cultural policymaking moved gradually through time from totally intrinsic to primarily instrumental. Inevitably, this has consequences on how the participants in cultural activities are

approached. The evolution of the paradigms suggests a trajectory moving from substantial negligence to increasingly refined research not only of the cultural taste or will to actively promote one's own culture but also of how these dynamics create economic value directly and indirectly. Which among these approaches is the socially optimal one is a matter for long and complex discussions whose contrasting points of view are ultimately connected to the opinions about the values attributed to arts and culture and the role they should play within society. Moreover, speculating on the shift towards an increasingly economic focus in cultural policymaking, it is possible to interpret it as a widening of the audience targeted, if not a shift in the main target audience and the reason for their targeting.

Policies finalized to the maximization of the economic externalities of the arts and culture have been incrementally intended by the academia as measures to attract a determinate type of workers (Florida, 2003) and, most notoriously, tourists – especially when it comes to urban regeneration through cultural heritage (Timothy, 2011; Lak et al., 2020). In this sense, economic cultural policies can be seen as focusing more and more on attracting outsiders rather than residents. By studying how the policy of clustering museums affects the residents' participation in the city's cultural life, the present research can be insightful on the matter.

3.3. The regenerative power(s) of culture: cultural policies and urbanism

The opposing positions in the debate relative to culture's role in society and the different paradigms shaping cultural policymaking also play a relevant role in urbanist decisions (Kong, 2000). Starting from the 70s and the 80s, the emergence of new urban social models mingled with the recently increased interests of policymakers in culture, leading them to consider cultural development as an essential factor in urban policy and politics. Initially, the main goal of the policymakers – coherently with the chronological order of the cultural policy paradigms – was to reaffirm the city center as a zone of sociability and strengthen civic identity. In this sense, it was conceived as a place for individual and group self-expression and interactive community-building. However, especially in the mid-80s, cultural policy became increasingly fascinating for decision-makers due to its potential as a driver of urban and economic regeneration (Kong, 2000).

This interest manifested itself through the issuing of three types of cultural policies. The first one consisted of the creation of cultural districts through investments in infrastructures functional to cultural production. Secondly, the policies were devoted to the development of emblematic projects relative to cultural institutions for the inner-city areas to encourage cultural

tourism. Lastly, they were finalized to revive public urban spaces through the funding of public artworks. Cultural economic policies, as they are labeled, have indeed been the source of multiple benefits for the cities of application; they have been linked with an increase in occupation, positive externalities for ancillary industries, a general improvement of the image of the region object of the policies (Myerscough, 1988), increase in revenues deriving from cultural tourism, and enhancement of property value (NASAA, 2017).

Most notably, the American urbanist Richard Florida (2003) developed the theory of creative cities also starting from these premises. The creative cities theory, building on the previous studies on the agglomeration of human capital as a driver for economic growth (Glaeser, 2000), hypothesizes that urbanistic policies finalized to attract the 'creatives' – all the people whose work engages with the creation of "meaningful new forms" (Florida, 2003, p.8) – can power the urban and economic regeneration of cities and regions. Therefore, it is the 'creative' capital, a particular type of human capital, of which clustering allows for economic growth, and this form of capital is attracted by an environment in which creativity can thrive. The creation of this environment calls for the concentration of cultural and, more generally, urbanist policies in determinate cities and areas in them. The creative cities' theory has also been investigated relative to the effects it has on cultural tourism (Alvarez, 2010), and the findings demonstrate how, albeit not unequivocally, the creative approach is also functional to the attraction of tourists.

However, the cultural economic approach, both in general and urbanist decision-making in policymaking, has also been contested as conceptually wrong and potentially harmful (Bianchini, 1993; Belfiore & Bennett, 2007; Garcìa, 2004). The conceptual and more general critique of cultural economics policies stems from a broader current of thought which Belfiore and Bennett (2007) label the 'autonomy tradition'. From this standpoint, well summarized by the notorious *art for art's sake* proposition, every instrumental use of the arts and culture must be rejected as their relevance ultimately resides in the aesthetic realm only. In this sense, this perspective rejects not only cultural policies issued for economic purposes but also for social ones, considering that they also fulfill practical functions. Nevertheless, it acknowledges the educational and humanizing potential of the arts, and thus, despite rejecting the issuing of cultural policies conceived as instrumental, it does not deny the social role that the arts can play. On the other hand, the economic approach towards art and relative commercial consideration is often considered as diminishing the status of art as a disinterested domain external to the consumerist rationality of contemporary society (Abbing, 2002). In this sense, there seems to

be more tolerance for instrumental policies with social purposes rather than economically oriented ones.

This preference is also reflected by the critiques made toward urbanist cultural economic policies. In this sense, the detractors of said policies in urbanism criticize the policymakers' shift of focus from the communities' demands and leisure to the creation of business opportunities (García, 2004). This shift is considered the origin of a commodifying trend in urban culture and, consequently, of various dilemmas entailed in the cultural economic approach: 'spatial dilemmas', such as gentrification and inequality between city centers and hinterlands; 'economic development dilemmas', like incentivizing cultural consumption over cultural production; and lastly 'cultural funding dilemmas', which reside in the decisions relative to the funding of ephemeral but more attractive activities such as festivals rather than permanent assets like infrastructures (Bianchini, 1993). Alongside economic development agencies, tourist authorities emerged as the champions of this approach, seeing in it a golden opportunity to promote and give unicity to cities to enhance their attractivity (García, 2004). Critics argue that in their thrust toward the regeneration of cities as "centres of excellence for business and tourism consumption" (García, 2004, p. 318), these institutions are biased towards the instrumental use of cultural policies and ultimately neglect and undermine the thought-provoking and socially emancipatory capacities of arts and culture.

To address this issue, the cultural planning approach to cultural policymaking has been advanced as an alternative (Bianchini, 1999). Cultural planning's innovativeness lies in the switch from a sectorial to a territorial approach, thus allowing to have a more holistic consideration of the impact of policies (Bianchini, 1999) as well as a more direct involvement of the population (Evans, 2013). This type of approach becomes increasingly interesting considering the accessible and community-centered character that the museum institution is moving toward (ICOM, 2022). By studying how the residents of the various districts of Rotterdam engage with the clusters' museums, the present study can point out potential incompatibilities between the strengthening of museums' social role and the type of provision implied by the cluster configuration, consequently raising questions relative to what the fittest decision-making approach to museums' provision is.

3.4. The case of museum clusters

Let's consider in greater detail how museums fit into these debates. The museum institution reached its modern conformation in the 18th and early 19th century after having been

relegated for centuries to private collections emblemizing the power of their owners (Alexander & Alexander, 2008). This phenomenon has been interpreted as part of a greater process of governmental instrumentalization of culture as a means to exercise new forms of power (Bennett, 1995). The new liberal democracies' policymakers, led by the conviction that contact with high culture could transform the inner world of the individual contextually impacting their behavior, understood and promoted museums as spaces where the population would learn new ways to self-regulate and self-monitor their attitude, thus helping the transition towards the new governmental structure spreading in Europe.

The European funding model for museums, prevalently grounded on centralized governmental support (Alexander & Alexander, 2008), could be interpreted as a consequence of this approach. The educational end conceived for museums and their funding structure had a relevant influence on what have been historically regarded as the main functions of the institution, making it imprinted toward collection, conservation, and research – all functional to its cardinal function to exhibit to the public (Alexander & Alexander, 2008). Initially characterized by elitist practices of audience selection, the museums gradually opened their doors to an increasingly varied type of visitors (McLean, 1995).

After the Second World War, museums faced a thrust toward managerial ethos and bureaucratization of their activities, with the stakeholders demanding greater accountability given the conspicuous amounts of public funds devolved to them. However, part of the professional staff opposed this transition and was reticent to adopt goal-oriented business managerialism, deeming it incompatible with the functions absolved by the institution. This transition became unavoidable when in the 80s, facing increasing competition of both museums and alternative forms of leisure as well as public financial stringency, museums were explicitly exhorted by the government to find alternative ways to retrieve funds like sponsorships and charity or performance of additional services such as cafés and shops (McLean, 1995, p. 606). The governments stressed the need for indicators measuring the museums' performance, among which the most important quickly became the number of visitors attracted, underlining the new necessity of museum institutions to market themselves better.

In general, this dynamic did not detach museums completely from their previous functions of collection and education. It rather determined a new conception of a museum visit as an 'experience', which substituted the collection in terms of the product offered by the institution. Moreover, the need to increase the number of visitors matches the social role of museums and their inherent drive to become more accessible to the population in its entirety (McLean, 1995, p. 607). In this sense, the commodification of the museum experience and the

increased adoption of marketing practices can be understood as favoring greater participation through the segmentation of the audience, reinforcing the social expediency to broaden access to less involved minority groups.

The relevance of funding dynamics in the museums' functions and behavior is further underlined by Frey and Meier (2003). Giving an overview of the general economics of museums, they identify the most important constraint to museum management in the institution's financial resources. In this sense, they point out several generic tendencies in the adoption of different institutional approaches and decision-making procedures referable to the type of funding received by the museum. According to the authors, museums relying on public grants tend to be mostly focused on the preservation and amelioration of their collection, whose quality usually is what grants them the public funds. Selling pieces of the collection will be hardly contemplated, as it would mean monetizing art and consequently opening to critiques from the outside. Publicly funded museums thus tend to put utmost care in the organization of exhibitions appreciated by the connoisseurs, considering that their finances often do not depend on the number of visitors and the income generated through the museums' amenities (Frey & Meier, 2003). In this vein, museum shops, cafeterias, and restaurants also typically receive little attention. Private museums, whose survival depends on the revenues produced through ticket sales and the performances of their retail shops, tend to have a diametrically opposite approach. Frequently, they need to manage their collection, following the art market carefully and trading art pieces according to the trends. Huge attention is devoted to the visitors' numbers, which usually translates into the organization of 'blockbuster exhibitions' and greater efforts to render the exhibitions accessible to the largest crowds possible (Frey & Meier, 2003). In this sense, private museums also tend to emphasize and take great care of the museum shops and services. At last, as in several countries donations to museums are an object of tax deductions, the authors identify one final typology of institutional approach in museums depending on donations. These will generally devote particular regard to their public image and efficiency, as they need their donors to be convinced that their offers are used properly and for a just cause. Moreover, museum managers tend to let the donors influence the museums' management, taking part in the programming process and deciding how their donations should be used.

The parable of museums' functions and funding applies well with the chronological order and cumulative character of the paradigms driving European cultural policies as identified by Négrier (2020). Guided by the conception of arts and knowledge as merit goods, the governments initially tended to support museums in their efforts to research and collect the best pieces so as to educate the population through their exhibition. As such, it is possible to

interpret their efforts as inspired by the paradigms of cultural excellence and cultural democratization. The subsequent requirements for accountability, need for measurement and focus on the economic results of the cultural venues reprise the transition towards policymaking mainly centered on the cultural economic paradigm. However, the greater focus on the economic externalities did not exclude in toto the positive social outcomes implied by the other paradigms. On the contrary, competition appears to operate as a thrust toward the enhancement of the museums' accessibility (McLean, 1995; Frey & Meier, 2003), even if this might not be the case in all circumstances.

It is interesting to analyze the clustering of museums and the reasons adduced for it in light of these different perspectives. In this vein, Van Aalst and Boogaarts (2002) investigated the agglomeration of museums as an urbanistic effort to make cities more appealing to potential newcomers and increase economic opportunities through culture. Museums emerge as key cultural venues in these processes, as they create value transversally for residents and tourists. Therefore, city councils are captivated by the possibility of using them as a means for the redevelopment of city centers, especially through their clustering, which is considered of great effectiveness in attracting visitors and tourists to selected areas of the city. The authors (2002) list several advantages deriving from the clustering: the possibility to share the infrastructures, such as parking and public transport; greater visibility for the diversity of the venues as well as increased opportunity for visitors to engage in multiple cultural activities in a reduced span of time; and, at last, the facilitation of the collaboration between museums in both practice-related and organizational work. In light of these considerations, museum clusters create benefits for both individuals and cities.

Van Aalst and Boogaarst (2002) argue that, due to the exponential increase in competition, this urbanistic approach had a significant impact on the museums' nature and function in contemporary society, which moved from the traditional role of repositories of the collections and centers of scholarly research to mass-attraction facility. To cope with the pressing need to generate revenues autonomously and the fierce competition of the other museums and the virtually infinite alternative forms of entertainment available, museums focus now preeminently on attracting the largest crowds possible through the implementation of a mix of commercial and educational strategies, with the ultimate result of becoming amusement centers (Van Aalst & Boogaarst, 2002). In this sense, it is possible to argue that museum clusters have been responsible for a transition toward museum programs aimed at increasing the institution's accessibility. However, this does not necessarily means opening the institution to the resident communities' needs, as the approach remains top-down and frames the participants

as a target of market strategies rather than participants in cultural activities. In this regard, the commercial stance adopted by the museum institutions, mainly envisioned to attract mass tourism, raises questions relative to their capacity and intentions to play a social role in the environment they are situated in (Brown & Mairesse, 2018). It is thus possible to see how the dynamics alimenting the debate between the different cultural policymaking approaches are replicated on a smaller scale in both urbanistic decisions and institutional directives of the museums.

4. The concept of access and the institutional perspective on audiences

Having discussed how cultural participation relates to the different approaches to cultural policymaking, how it is addressed through urbanistic policies both in general and in the museum context, and the various branches of research relative to its determinants, this section deepens the two concepts framing the research's angle on cultural participation and shaping the analysis - access and attendance. The following subsection is devoted to the former and its conceptualization by Feder (2022), which is slightly expanded through the consideration of the availability of transportation means. The subsequent one will deepen the concept of audience and present the institutional perspective (Ang, 1991), in which the study will approach the museum visitors.

4.1. The dimensions of access and the role of transportation

Feder (2022) identifies the role of access to cultural consumption in the intermediary between cultural taste and consumption - intention and behavior – and defines it as "the prospect of realizing a desired act of cultural consumption" (p. 2). Considering it the major source of inequality in the consumption of culture, he deepens its understanding by breaking it down into a hierarchy of four dimensions. Going from the most to the least constraining, these are right, opportunity, participation, and reception. Each of them is independent of the others, and it is possible to experience uncorrelated degrees of each type of them. However, encountering a barrier in a more constraining dimension is very likely to prejudice the fruition of the other ones (Feder, 2022). The dimension of right refers to the most fundamental scenario in which cultural consumption is formally prohibited through legal measures and/or institutional discriminatory practices. Following, opportunity indicates the individuals' possibility to physically consume the cultural good with a moderate effort. In this sense, the most immediate example of an

opportunity barrier is the lack of cultural venues within a reasonable distance. However, opportunity represents a necessary but insufficient condition for cultural consumption. That is because individuals might face further barriers in the third dimension, participation, which is tied to the socio-economic extraction of the consumers. Nevertheless, the social position of the potential consumers is not identified as a proxy for their cultural knowledge as in Bourdieu, for example. In this sense, concrete participation barriers can be the cost of the ticket or time availability (Feder, 2022), thus linked more to the practical implications of the different positions an individual can have in society. The last type of barrier to consumption is reception, which refers to the capacity to effectively appreciate and understand cultural goods. In this case, Feder (2022) is referring to what Bourdieu defined as cultural capital, thus tying the dimension of reception to the education, cognitive skills, and social network developed by the individual.

This study, investigating the infrastructural barriers, will focus on the dimensions of opportunity and participation. Or better, it will focus only on opportunity but extending this dimension to participation's time availability factor. In fact, the study assumes that, as far as social position is indeed a key determinant for the availability of time, the latter is of crucial importance also in the consideration of whether it is a reasonable effort to go to a cultural venue or not, independently from the social position and its consequences. In other words, the study assumes that a person who lives 20 kilometers away from the cultural venue that they want to visit will do some calculations relative to the time that they want to devote to the travel and the desire they have to visit the venue independently from their income.

Feder (2022) identifies several determinants for the different types of access. As the focus of the study lies in the dimensions of opportunity and participation, the others will not be considered. Starting with opportunity, the main determinant is represented by the lack of supply, and it is thus related to the spatial dimension. In this sense, the variables to be considered are primarily distance from the venues and the size and centrality of the location. Accordingly, it is expected that residents of rural or peripheral areas will have lesser opportunities to take part in cultural activity. When it comes to the determinants for participation, these are identified in income and time constraints. Leaving aside the former, Feder (2022) highlights the role of the availability of leisure time in the choices relative to participation and underlines how higher income is usually associated with a greater amount of leisure time. Nevertheless, it is also pointed out how lower-income classes are enjoying an increasing amount of leisure time. Therefore, it is fair to assume that spatial distance and the time needed to cover it will play a part in the decisions of the individuals.

In this sense, this research adds a further determinant relative to the opportunity, namely the availability and choice of transportation means. The assumption behind this choice is that the possibility to use transportation means allows saving a significant amount of time in the visitors' effort to reach the desired venues and, hence, this variable has a tangible impact on the individuals' choices. In line with this proposition, multiple studies underline the emancipatory and regenerative potential of the transportation infrastructure and access to private transportation means by investigating it in different fields, ranging from labor (Lei et al., 2019) to leisure activities (Evans & Shaw, 2001; Johnson et al., 2011). Interestingly, in the case of cultural activities, zero- and one-car-owning households present greater rates of participation than two-car households, and inhabitants of the inner areas of the city participate more than those living in the periphery (Johnson et al., 2011). Johnson et al. (2011) interpret these results as indicating the influence of cost and time on the two-car households' attendance decisions, as high car ownership tends to be concentrated in the outer zones of the cities due to the lack of alternative transportation means. On the contrary, the greater supply of cultural venues in the inner city represents an encouragement to participate in cultural activities. Therefore, the use or non-use of transportation means appears related both to the access dimensions of opportunity and participation, making it worth incorporating it in the present study's analysis.

4.2. Understanding audiences and the institutional point of view

The choice to focus on audiences among the multiple forms of cultural participation is very practical. Considering the decision to analyze the access dimensions of opportunity and participation and their relationship with infrastructural barriers, it appears obvious that attendance to cultural venues is the form of participation that will be directly hindered the most by them. However, the concept of audience has been the object of a consistent corpus of academic studies and thus needs to be framed for the sake of the analysis.

In the present study, the audience will be approached from the institutional point of view (Ang, 1991). Studying television audiences, Ang defines the stance adopted by the broadcasters towards the audience as 'institutional', indicating with that an understanding of audiences as a passive, unified, and objectified entity. It originates from the need to plan and program cultural institutions to interface themselves with a public that appears seemingly unreachable and unmanageable due to its vastity and dispersion. Confronted with this problem, the broadcasters tend to construct a fictive type of audience to understand how to proceed in the programming efforts. In this way, the 'audience' is approached as a "structural position in a network of

institutionalized communicative relationship", within whose constraints the real people become the designed audience, with all of what this entails in sociocultural and psychological terms (Ang, 1991, p. 3).

Despite different modalities and goals, this approach is adopted by both public and private institutions as they both ultimately strive to survive in a complex, insecure, and competitive environment. However, they both neglect the audiences' passivity in the supply's content and, on the contrary, justify their operations as finalized to give the consumers better representation. In this vein, public institutions showcase what is deemed to be of 'public interest', and private ones cherish fierce competition as enabling the audience to have greater decisional freedom (Ang, 1991). However, these narratives of representation hardly translate into facts as the audiences are ultimately constrained by the contents univocally decided by the private competitors and the institutions. Moreover, the research on audiences performed by said institutions is informed by this stance, meaning that the information collected, rooted in the epistemological process itself, becomes important only when it reinforces the institutions' need to control the audiences. In this way, instead of granting a more active role to the audiences in the process of content creation, audience measurements ultimately render audiences even more passive and objectified.

When implemented by cultural institutions, this approach has clear limitations, starting with the failure to acknowledge the peculiarity of the different types of audiences as well as their active participation in the construction of meaning and experience during the consumption of cultural goods (Falk & Dierking, 2012). These two issues need to be addressed straightforwardly because they can establish and reinforce exclusionary dynamics within the field of the arts and culture, as demonstrated by all the cases where the audience constructed through the institutional approach is so homogeneous and rooted in power relationships to discourage the participation of diverse visitors (Tolia-Kelly, 2016; Meghji, 2019; Olivares & Piatak, 2021).

However, approaching the audience from an institutional point of view is particularly fit for the present study. In the first place, the institutional approach applies particularly well to the case of museums, as the duality between public and private institutions and the motivations guiding them replicate very similarly. Public museums pursue 'public interest' and strive to educate and sensitize people to urgent matters, while private museums, despite being still engaged in raising awareness about relevant societal topics, have to pay greater attention to their position in the market due to their funding situation (Frey & Meier, 2003). Following, and most importantly, the study does not consider any type of social distinction when studying the

audience but rather focuses on the role of infrastructural barriers in the fruition of the museums' services. In this sense, the institutional point of view seems a particularly fit stance to hold while studying the audience, which is approached as an entity passively accepting the supply and consuming according to their opportunity to do so. Were the assertions underlying the study to be confirmed the study could highlight how, in the case of physical cultural institutions, infrastructural barriers must be considered as a further discriminant factor in the supply of cultural goods and services when issuing cultural policies.

5. Research design and methodology

The present study performs quantitative research to analyze the relationship between the distance of the different neighborhoods and the museum attendance patterns of their inhabitants. The analysis was structured in four steps: the process of cultural mapping of Rotterdam's museums, the calculation of the accessibility indexes (Brook, 2016), the retrieval of data through a survey, and the analysis of the data through the creation of regression and correlation models. The following sections elaborate respectively on the calculation and use of the accessibility indexes, the data collection and the survey design, and the constructions of the hypotheses and the statistical models.

5.1. Accessibility indexes and access zones

Among the Geographic Information Technologies, the research uses the method of mapping through the internet for the process of cultural mapping (Gibson et al., 2010). The websites and applications adopted were Google Maps and Apple's Maps. With these tools, it was possible to gather point data on the museums (Gibson et al., 2010) and their distance from the different districts of Rotterdam. This method also has the advantage of being freely accessible and easy to use, differently from the other GITs. The distances are measured through the *network time distance* approach (Apparicio et al., 2008, p. 5). By measuring distance in terms of the time needed to arrive at the facility, this approach allows us to consider how the choice to use a transportation means rather than another can impact the visitors' decisions, thus relativizing distance. In this way, the analysis comprehends a wider set of factors determining the choice to visit the Museumpark or not. Moreover, the *network time distance* approach accounts for the different factors shaping mobility and the complexities they entail.

As the variations of traffic throughout the week can affect the time needed to reach the desired destination and thus, working with the network time distance approach, the effective distance considered, it was necessary to select one or more weekdays to calculate the routes. Considering that museum visits are mostly ascribed to leisure time activities (Frey & Meier, 2003), the distances were calculated during the weekend, when it is reasonable to assume that people will have more time available for leisure activities. More specifically, they were calculated at different times for each transportation mean between 10 am and 18 pm – the museums' opening times. The ultimate distance considered was the mean of the different times obtained. The transportation means considered (in alternative to going by walking, which was also considered among the alternatives) were public transport, car, and bicycle.

The cultural map emerging from the adoption of said technologies was subsequently used to calculate the museum cluster's accessibility indexes for each of the city's districts. The indexes were calculated in a slightly revised form of the one proposed by Brook[1] (2016). Brook's (2016) accessibility indexes allow us to calculate the accessibility to a determinate cultural venue for a determinate zone of the city by considering the cost of travel to the venue or the distance between it and the reference zone weighted for the size and attractiveness of the venue considered. However, as the museum cluster implies that all of the venues are concentrated in the same area, the study adjusts the index for this scenario; the cluster is considered as an entity uniting the attractiveness of the different museums composing it. In technical terms, this means that the proximity of the museums is translated in the use of a constant in spite of different attractiveness' values in the calculation of the index. The indexes can be interpreted as an indicator of the cultural opportunities for the different neighborhoods and give a first overview of the perceived accessibility of the museums from the different neighborhoods of Rotterdam. In addition to their predictive function, the inclusion of these indexes in the regression model gives a more significant and complex indication of the museums' accessibility rather than the simple measure of distance (Brook, 2016).

The indexes calculated are relative to the 13 districts that constitute the city of Rotterdam: Rotterdam Centrum (1), Delfshaven (2), Overschie (3), Noord (4), Hillegersberg-Schiebroek (5), Kralingen-Crooswijk (6), Feijenoord (7), Charlois (8), Spaanse Polder (9), Nieuw Mathenesse (10), Waalhaven-Eemhaven (11), Rotterdam-Noord-West (12), and Rivium (13) (Postcode Rotterdam, n.d.). The spatial units of reference considered to calculate the distance of the districts from the Museumpark are the centroids of the districts. Considering the

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[1] The formula is available in the annexes.

centroids as a reference point can raise problems in terms of aggregation errors (Apparicio et al., 2008). However, considering the limitedness of the sample, the tendency toward aggregation can be considered as more representative of the inhabitants of the district.

Table 5.1. Accessibility indexes for Rotterdam's districts

A Indexes	District	Walking	Car	Bike	PT	AvA	
	1	20	50	100	25	48,75	
	2	3,57	12,5	12,5	9,09	9,42	
	3	1,19	7,14	3,85	2,27	3,61	
	4	3,45	11,11	11,11	4,38	7,51	
	5	1,37	5,88	4,76	2,86	3,72	
	6	2,08	8,33	6,66	6,66	5,93	
	7	2,63	8,33	8,33	4	5,82	
	8	1,75	9,09	6,25	4,16	5,31	
	9	1,89	7,69	6,66	2,86	4,76	
	10	1,96	8,33	6,25	4,16	5,18	
	11	1,11	6,67	4,16	2,5	3,61	
	12	1,2	6,67	4,16	2	3,5	
	13	1,43	6,25	5,26	5,26	4,55	

Table 5.1. Accessibility indexes for Rotterdam's districts.

Table 5.1 lists the accessibility indexes calculated for the 13 districts that compose the city of Rotterdam. Intuitively, the district of Rotterdam Centrum (1), where the Museumpark is located, and the neighboring ones of Noord (4) and Delfshaven (2), report the highest values. Therefore, in the analysis, they are grouped in the dummy variable Access1, which represents the zones with better access opportunity. The rest of the districts are grouped in the dummy variable Access2 which, being specular to Access 1, could not be used in the same regressions analyses. The proportion of respondents for each access area can be seen in Figure 5.1.

Respondents per Access Area
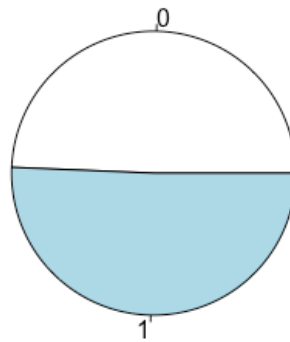
0 = Worst access, 1 = Best access

Figure 5.1. Respondents per access area, N = 151

5.2. Data Collection and Survey Design

Due to the unavailability of already existing quantitative and quantifiable data to use, these were retrieved through the conduction of a survey[2]. Through the analysis of said data, the research looks for patterns of association in a specific timespan to confirm or assess possible variation from previous studies on the topic, thus assuming a cross-sectional design (Bryman, 2012). The survey is designed as a self-compilation questionnaire and was administered via Web and e-mail in both English and Dutch language. Since the gathering of a random sample large enough to be representative of the whole city of Rotterdam appears to be unfeasible, a type of non-probability sampling was adopted: convenience sampling. The initial plan was to reach out to the respondents through the network of Rotterdam's public libraries, which is capillary disseminated throughout the city, and the mailing lists as well as membership programs of the Museumpark's museums. However, all the contacted institutions declined the offer to collaborate on the research, and an alternative collection plan was implemented.

In addition to its diffusion via the Web, the survey was also administrated physically in selected areas by disseminating the QR code linked to the survey. The Web dissemination was conducted through multiple Whatsapp groups with different purposes. Several of the groups operate as marketplaces, and one is used as a platform to organize museum trips. However, all

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[2] Survey available in the annexes.

the groups require the participants to live in Rotterdam to partake in them. The ratio behind the selection of these groups lies in the infrastructural focus of the research, which, disregarding sociological factors, allowed to set a very basic requirement to undertake the survey: living in Rotterdam. In this sense, all the available channels were used to disseminate the survey and reach a sample as large as possible through the Internet. On the other hand, the physical administration was concentrated in two locations: the Museumpark itself and Erasmus University Campus. The two collection sites have one fundamental thing in common, they both attract, allegedly, their attendees from different parts of the city. This aspect allowed to have a diversified sample in terms of the respondents' provenance. Nevertheless, there were additional reasons to collect data in said areas. Assuming that a relevant fraction of the people in the Museumpark is there to visit museums, collecting data at the Museumpark allows - similarly to reaching out to the participants in the museums' membership programs, even if to a lesser degree – to have an insight on the provenance of museumgoers. The ulterior ratio followed in choosing the University campus as a collection site was the homogeneity that it entails relative to at least one of the control variables considered, namely education. This homogeneity determines a lower bias of said variable on the investigated effect.

The total amount of responses was 211. Nevertheless, due to incompleteness and errors in the compilation of the survey, the sample adopted for the quantitative analysis fell to 151 individuals (N=151). The size of the sample constitutes one of the limitations of the study, as it cannot be considered representative of the whole city of Rotterdam. Nevertheless, it is large enough to find relevant findings in the inhabitants' patterns relative to museum attendance. The results can thus be approached as preliminary data for deeper research grounded on a consistently larger sample.

The survey questions are inspired by the data collection process enacted for the latest edition of the UK's Taking Part Survey (Ipsos MORI, 2019). Nevertheless, the questions are not identical as the present study, differently from the Taking Part Survey, also investigates the frequency of the individuals' attendance. Asking for the number of visits in the last 12, 6, and 1 month rather than whether the respondent has ever been to a museum, the study strives to capture the effects of access in the long term. This approach allows for more complex analysis, giving the opportunity to elaborate some descriptive statistics relative to participation patterns in addition to the regression models. However, the variables are readapted as dummy for the sake of the regression's results' significance, meaning that the regression variables were ultimately binary. In this sense, the study develops logistic regression models, the fittest for binary variables, just as in Brook's (2016) study. The regression models study the causal

relationship between the dependent variable – the attendance to museums – and the independent variables operationalizing access opportunity (Chatterjee & Simonoff, 2013). The variables considered can be seen in Table 5.2.

Table 5.2. List of the regression models' variables

Variable	Description	Type
Access1	Resident in an area with the best or worse access	Dummy
Interest	Interest for the museums	Ordinal
Visitx3	Has been to a museum in all of the considered periods	Dummy
DVisit12	Has been to a museum in the last 12 months	Dummy
Car	Has access to a car	Dummy
Bicycle	Has access to a bicycle	Dummy
OV	Subscribed to public transportation	Dummy
Secondary Education	Max level of education: Secondary education	Dummy
Bachelor	Max level of education: Bachelor	Dummy
Master's	Max level of education: Master's	Dummy
Doctorate	Max level of education: Doctorate	Dummy
IncomeA	Income equal to or above the national average	Dummy
IncomeB	Income below the national average	Dummy

Table 5.2. Variables adopted in the regression and correlation analyses.

The survey, as well as the regression analysis, also comprehends variables related to socio-economic factors. Even if the study focuses on infrastructural barriers, non-including these kinds of variables could introduce significant biases in the results, and, moreover, their consideration does not impact the assessment of the role of spatial accessibility. More specifically, the socio-economic factors adopted as control variables are the income and education of the respondent, which are the two most investigated factors relative to cultural participation (Brook, 2016). A clarification is needed for the variables IncomeA and IncomeB, which could be rightfully thought specular like Access1 and Access2. Since the survey contemplates the possibility of avoiding answering the question relative to personal income, said variables do not behave symmetrically and thus were both included in the regression analyses.

The questions relative to education, employment, and income were designed in accordance with SurveyMonkey's (n.d.) guide, a long-established survey platform relying on experts' knowledge and AI. The values considered to establish the different income categories

were selected according to the latest national statistics on personal income, which are relative to 2021 (Statline, 2021). The inclusion of these socio-economic variables also improves the external validity of the research as they are considered in the Taking Part Survey analyzed by Brook (2016) and her analysis.

5.3. Hypotheses, Regression, and Correlation Analyses

The hypotheses tested are the following:

H1: Access opportunity affects the likelihood of visiting Museumpark's museums.

H2: Access opportunity affects the frequency of the individuals' visits to Museumpark's museums.

H3: Access opportunity is related to the interest in visiting Museumpark's museums.

The research is guided by several assertions: firstly, it expects that worse access opportunity, proxied by distance and availability of transportation means, will negatively affect both the likelihood and the frequency of the visits of Rotterdam's residents; secondly, and also because of the assertions relative to the first two hypotheses, it expects to find a negative correlation between access opportunity and the interest in visiting the museums.

The hypotheses are tested with two logistic regression models and a Spearman correlation index. The difference between the two types of analyses lies in the type of relationship that they establish. While the regression determines causality between the variables investigated, thus allowing to construct predictive models (Chatterjee & Simonoff, 2013), correlation points out the strength and the direction of the relationship between the investigated variables without implying causality (Bryman, 2012). Considering the difficulties in attributing causality to the infrastructural variables when investigating the individuals' interests, it was deemed more appropriate to assess only how they relate to the area of provenance rather than try to establish causality with it. The formulas of the regressions testing the hypotheses are the following.

H1: Model 1) DVisit12 = Access1 + Car + Bicycle + OV

Model 2) DVisit12 = Access1 + Car + Bicycle + OV + Secondary Education + Bachelor + Master's + Doctorate + IncomeA + IncomeB

H2: Model 3) Visitx3 = Access1 + Car + Bicycle + OV

Model 4) Visitx3 = Access1 + Car + Bicycle + OV + Secondary Education + Bachelor + Master's + Doctorate + IncomeA + IncomeB

For each of the first two hypotheses, the relationship between access and, respectively, likelihood to visit and the frequency of the visits to the museums was calculated twice. Firstly, by relating only the variables proxying access opportunity, namely those referring to the areas of provenance and the availability of transportation means. Secondly, by adding the socioeconomic variables considered. In this way, it was possible to assess if there is a variation in the coefficient values of the infrastructural variables due to consideration of the socioeconomic ones and, if so, what the entity of said variations is. Relatively to the correlation analysis testing H3, Spearman's index was calculated on the variables Access1 and Interest.

6. Analysis

Having clarified how the research was structured and the variables operationalized, the following subsections present the results of the analyses, their interpretation, and their contextualization in the literature. The following three subsections present the results of the regression and correlation analyses. Each of these is devoted to one of the hypotheses tested going from H1 to H3. The subsequent two deal with the results' interpretation and discussion. The former clarifies what the results of the analysis mean, and the latter contextualizes them in the academic debates about the topic.

6.1. Access opportunity and visits' likelihood

The two logistic regressions elaborated produced the findings that can be seen in Tables 6.1 and 6.2.

Table 6.1. Likelihood of visiting a Musempark's museum at least once a year (infrastructural variables only)

Independent Variable	Estimate	P-value	PseudoR2
Intercept	-0,357	0,808	0,096
Access1	1,381	0,000***	
Car	-0,894	0,080 .	
Bicycle	0,226	0,616	
OV	0,438	0,761	
Level of significance: '***' =0, '**'≤0.01, '*'≤0.05, '.'≤0.1			

Table 6.1. Model 1 Logistic regression model, visiting the museums at least once a year (infrastructural variables only)

Table 6.2. Likelihood of visiting a Museumpark's museum at least once a year (all variables considered)

Independent Variable	Estimate	P-value	PseudoR2
Intercept	-0,933	0,602	0,133
Access1	1.152	0,006**	
Car	-1,073	0,073 .	
Bicycle	0,236	0,623	
OV	0,512	0,73	
Secondary Education	1,16	0,303	
Bachelor	1,525	0,168	
Master's	2,273	0,063 .	
Doctorate	1,244	0,532	
IncomeA	-0,562	0,62	
IncomeB	-0,938	0,317	
Level of significance: '***' =0, '**'≤0.01, '*'≤0.05, '.'≤0.1			

Table 6.2. Model 2: Logistic regression, visiting the museums at least once a year.

Considering the high levels of significance for the variable Access1 observed in both models, it is possible to accept H1. Therefore, it can be argued that the access opportunity of the resident's area of provenance does affect their likelihood to visit the museums of the cluster. In line with the research's assertions, being resident in areas with better access opportunity positively affects the chances of visiting the museum cluster. The study's contention finds further confirmation in the descriptive statistics relative to the average number of visits by the people residing in the two access areas considered: the residents in the districts with better access opportunity average 4,62 visits a year, while those living in the areas with worse access visit the museums sensibly less, averaging 1,75 visits per year. Moreover, both models highlight a significant negative relationship between the availability of a car and the visits. At last, Model 2 underlines a significant positive relationship between the achievement of a master's degree and the likelihood of visiting the museums. The low values of Pseudo R Squared indicate a scarce predictive power of the model.

6.2. Access opportunity and frequency of visit

Tables 6.3 and 6.4 show the results of the regression models investigating the relationship between frequency of attendance and access opportunity.

Table 6.3. Frequency of the visits (infrastructural variables only)

Independent Variable	Estimate	P-value	PseudoR2
Intercept	-15,939	0,988	0,071
Access1	1,202	0,012**	
Car	-0,8523	0,281	
Bicycle	0,402	0,504	
OV	13,504	0,99	
Level of significance: '***' =0, '**'≤0.01, '*'≤0.05, '.'≤0.1			

Table 6.3. Model 3: Logistic regression, visiting the museums at least once in the last 12, 6, and 1 months (infrastructural variables only).

Table 6.4. Frequency of the visits (all variables considered)

Independent Variable	Estimate	P-Value	PseudoR2
Intercept	-16,022	0,992	0,11
Access1	1,260	0,018*	
Car	-0,886	0,293	
Bicycle	0,465	0,457	
OV	14,661	0,993	
Secondary Education	0,228	0,863	
Bachelor	0,208	0,871	
Master's	-0,0278	0,984	
Doctorate	-14,731	0,993	
IncomeA	-0,800	0,404	
IncomeB	-1,598	0,049*	
Level of significance: '***' =0, '**'≤0.01, '*'≤0.05, '.'≤0.1			

Table 6.4. Model 4: Logistic regression, visiting the museums at least once in the last 12, 6, and 1 months.

The levels of significance observed allow us to accept the hypotheses tested; access opportunity affects the frequency of the residents' visits. Confirming the expectations of the study again, the relationship between the residency in closer and better-connected areas enhances the frequency of the visits to the museums. Also in this case, the higher average number of visits of the residents in the better access zones can be understood as strengthening the regression results. The regression model does not underline further significant relationships except for the negative one with the class of income below the national average. In the case of

models 3 and 4, the low entity of the Pseudo R Squared indicates low explanatory power as well.

6.3. Access opportunity and interest for museums

Table 6.5 shows the results of the correlation analysis.

Table 6.5. Correlation between better access area and perceived interest in the Museumpark's museums

Spearman's Rho		P-value
Interest		0,006**
Access1	0,221	
Level of significance: '***' = 0, '**'≤ 0,01, '*'≤ 0,05, '.'≤ 0,1		

Table 6.5. Spearman's Rho correlation analysis between residency in an area with better access opportunity and the interest for Museumpark's museums.

Spearman's R can assume values 0 and 1 and be both positive and negative, thus indicating the type of correlation between the variables (Bryman, 2012). The values -1 and 1 indicate, respectively, total negative and positive correlation, while 0 indicates no correlation at all. By looking at the results, the analysis allows us once again to accept the hypothesis tested and confirms the assertion of the study by identifying a positive and highly significant correlation between the variables considered. Better opportunity of access is related to a higher perceived interest in the museums of the cluster.

6.4. Interpretation

The results of the logistic regressions represent the average fluctuation of the log odds of the dependent variable following a marginal increase in the independent one (Chatterjee & Simonoff, 2013). By elevating e to the estimate's value, they can be turned into odds ratio – the difference in probabilities determined by being in the category identified by the variable rather than its opposite if all the other values stay the same. In this sense, considering the odds ratio favors a clearer explanation of the phenomenon studied. Spearman's correlation index

By looking at all the significant results of the models testing both H1 and H2 with the control variables, it is possible to see that, in line with the literature on cultural participation,

education and income are the factors most affecting the audience's attendance. In model 2, testing the likelihood of visiting the museum at least once a year, the highest estimate is relative to the obtainment of a master's degree, which makes the odds of visiting 9,71 times higher than if the individual did not get it. Model 4, relative to the frequency of the visits, indicates belonging to the class of income below the national average as the most affective variable, even if with a negative effect on this occasion.

However, the models also point out a clear and sensible effect of the residents' provenance both on the probability and the frequency of their visits to the cluster's museums. The inhabitants of the districts with better access are 3,16 times more likely to visit the museums at least once a year and 3,53 more likely to visit them more recurrently. In line with the contentions of the academic branch focusing on the spatial distribution of cultural venues, these numbers, together with the positive and considerable correlation between better access opportunity and interest in the museums, underline how the infrastructural barriers do influence the audiences' decision-making process.

The only further significant causal relationship identified by the regression models – model 2, more specifically – refers to the individual's access to a car and is negative. This result can be interpreted in two ways: in technical terms, it can be attributed to the considerable quantity of students in the sample and the scarce access that they might have to cars; in a more heuristic perspective, to the fact that only 3 out of 151 individuals composing the sample indicated the car as the transportation means they would use to reach the Museumpark, suggesting that car is not the preferred transportation means to go to the city center. As the two interpretations are not conflicting, this counterintuitive result could be understood as related to both.

It is also interesting to consider in greater detail the estimates' and significance levels' changes between the models investigating only the infrastructural factors and those including the socioeconomic control variables. Despite variating in different ways (a negative variation for the likelihood of visiting and a positive one for the visits' frequency), the variation's entity is small in both cases, and the results remain highly significant. This data is extremely relevant as it points out that, even with the insertion of the most influential variables according to the literature, the residents' area of provenance remains a factor affecting significantly and considerably their decision-making process. This aspect reinforces the idea that looking into the effect of infrastructural barriers to cultural participation is as relevant as focusing on the socioeconomic ones.

At last, it has to be noted that the Pseudo R-Squared values for all the models are considerably low, thus indicating their low predictive power. Facing the same issue, Brook (2016) explains it with the strong personal nature of the responses to the survey, which implies a considerable deal of casual variance entailed by individual preferences and chance occurrences. Moreover, the fact that the models fail to describe with certainty the audiences' behavior is not surprising at all, as there are many more factors influencing the individuals' decision-making processes, some of which have not even been identified by academia yet. This is even less surprising in the case of the present study, where acknowledged factors such as ethnicity - for example - were not considered due to the author's limited resources in the data collection process.

6.5. Discussion

The analysis' results are of great interest to several debates occurring in academia. First and foremost, they contribute to a better understanding of cultural participation and the barriers to its enhancement. In this sense, they underline under-researched problematics in the study of cultural participation, point out the replication of misconceptions relative to audiences in cultural policymaking, and substantiate with findings the suggestions pointed out by previous research on museum clusters. Secondly, they raise questions relative to the viability of the different approaches for cultural policymakers facing the evolution of the museum institution.

Starting from the insights on cultural participation, not only the results confirm the relevance of infrastructural barriers in the individuals' decision-making process, but they hint at the fact that these effects are magnified in the case of museum clusters. By confronting them with the results obtained in Brook's (2016) study, which also uses the accessibility indexes to divide the city into access areas but considers all the art galleries and museums dispersed in the city of London, the present ones appear of a substantial larger entity. The coefficient of the variable of the areas with the best access is almost triplicated. This data is not entirely surprising, as it is reasonable to expect that the practice of clustering museums necessarily intensifies the effects of the venues' geographical distribution on attendance. Intuitively, the closer the venues are grouped in one area of the city, the more areas with worse access there will be.

However, several factors must be considered when assessing the relevance of the comparison between the studies. Despite the strong similarity in the research design, the cities under research are different, the accessibility index of the present study is slightly reviewed to

adapt it to museum clusters, and Brook's (2016) study considers more sociologic variables over a larger sample. Moreover, two earlier studies by the same author (Brook et al., 2010; Brook, 2013) produced higher values for the estimates related to the accessibility index variable. These studies are more difficult to compare to this research as in one of them (Brook, 2013) the accessibility indexes are calculated in a substantially different manner, and both use accessibility indexes directly as a variable rather than creating different access areas with them. Considering these criticalities, the greater effect on attendance attributed to museum clustering through the comparison of this and Brook's (2016) latest study needs to be the object of further research to be confirmed. Nevertheless, even if they can't prove with certainty the museum cluster's strengthening of infrastructural barriers, the results remain interesting as they confirm these barriers' limiting effect on attendance and contribute to the under-researched branch of studies focusing on them.

Concurrently, the analysis' outputs underline the risks entailed by an indiscriminate approach toward the audience in policymaking. Insensitive to, or better, aware of the socio-economic tissue of a single area of the city yet finalized to reshape it, the process of clustering museums can be understood as a policy maneuver shaped by Ang's (1991) institutional stance; the public interest is chosen univocally by the policymakers and imposed on the residents. The policy clearly has its benefits, as demonstrated by the regeneration of the Museumpark area and the visits' frequency of the residents in the central districts, but they appear to be mostly economic and, for what concerns the ones related to cultural participation, localized.

The contextualization of the institutional point of view in urbanistic cultural policymaking casts new light on the factors to consider when issuing policies. It is interesting to look at the results of the study in this sense; by prioritizing the study of infrastructural factors, they point out how the institutional point of view can be hindering to cultural participation not only due to its failure to recognize the social diversity of the audiences (Ang, 1991) but also their geographical dispersion in the city. Despite assuming a higher relevance in the case of museum clusters, this is an aspect that remains important in all public interventions in the cultural field. Policymakers willing to adopt urbanistic cultural policies need to thoroughly evaluate what could be the actual enjoyment of the policy's output by all the residents and, if there happen to be unbalances, try to fix them with additional policies so as to guarantee equal opportunity to participate to cultural life.

The criticalities in cultural participation's development identified by framing urbanistic cultural economic policies through the institutional point of view can be reconnected to the emergence of the 'spatial dilemmas' pointed out by Bianchini (1993). In particular, the results

of the analysis suggest that a museum cluster might operate as a driver for inequality between the city center and the more peripheral areas. Those who have better access to the cluster – the center's residents - have better opportunities to participate in that fragment of the city's cultural life and, according to the regression models, enjoy it more and more frequently. Nevertheless, this social cost has to be measured against the economic benefits that the municipality obtains from the cluster's regeneration effects and its greater attractiveness for tourists, which become even more relevant in a scenario where the museums are mostly funded by the public. In this sense, the process of clustering museums could be understood as functional to the start of a virtuous circle allowing the museums to remain mostly publicly funded and thus maintain the collection-related advantages associated with public funding (Frey & Meier, 2003). However, even if these allegations were to be confirmed empirically, it stays questionable whether it is socially just and sustainable or effective in terms of the museums' goals to take the risk of hindering substantially the opportunity to visit the museums of a considerable part of the city's residents to maintain the museums publicly funded and have deeper collections.

Considering the evolution of the role of museums in society and the accessible, inclusive, and community-centered nature envisioned by their latest definition by ICOM (2022), these issues appear very timely and worth speculating upon in light of the analysis' results. Accessibility, intended in its participative and receptive dimensions (Feder, 2022), can be improved through policies of representation (Olivares & Piatak, 2021), curational choices (Tolia-Kelly, 2016), and education (Damen & Klaveren, 2013). An improvement in this direction would contextually increase the institutions' inclusivity. As the results of the study point out, the issues arise when accessibility is intended in its opportunity's dimension, whose scarcity could impair museum clusters' reach to all the cities' communities and vice versa. In this sense, it is reasonable to hypothesize that the different levels of fruition of the museums could be replicated in terms of community engagement. In other words, the communities of the neighborhoods with better access to the cluster are more likely to participate actively in the museums' operations. Once again, the risk is that of establishing an unbalance in the opportunities offered to the residents to participate in the city's cultural life. Speculating further, the risk could be higher in a scenario where, despite the efforts to render the museum institutions more inclusive, the stronger bond between the museums and the communities participating more often might discourage other communities' engagement even more.

Possible ways to address these criticalities can be identified in museum practices and in the policymaking approaches adopted by the decision-makers. Museums can try to contrast these dynamics by organizing projects that reach out to the more detached communities and

involve them in the processes of knowledge sharing and learning. A concrete example of this can be found in Museum Boijmans van Beuningen's 'Zuid' program, whose main aim is to create a mutual exchange of knowledge and skill with the inhabitants of the neighborhoods of Rotterdam South (Zuid; n.d.). Nevertheless, the initiative is grounded on the organization of all the activities in the former Techincal School in Feijenoord, thus pointing out again the relevance of the geographical location for the resident communities' participation.

An alternative (and more radical) path walkable to favor the transition to the more accessible and community-centered museum could be a turn towards a more bottom-up policymaking approach in the cultural field. In this sense, cultural planning has been suggested as a viable solution (Bianchini, 1999). Moving the focus from the sector of the policy to the territory in which it is applied and contextually allowing the people impacted by the policies to take part in the policymaking process (Bianchini, 1999; Evans, 2013), this approach incentivizes the engagement of the various communities with the cultural institutions starting from the decisions relative to their provision. Operating in this way, it has the potential to ensure equal representativeness to all the city's residents in the decision-making process relative to the cultural life of the city.

However, to the author's knowledge, it remains to be empirically determined whether the actual implementation of cultural planning can lead to an effective increase in cultural participation and, more specifically, museum attendance. Neighborhood effects (Galster, 2011) could represent a hurdle; the residents of areas that have been suffering the deprivation of cultural venues for a long time might not perceive museums, or cultural venues in general, as something they could like or fit in and dismiss the opportunity to have them in their neighborhoods. The results of the correlation analysis, indicating a positive relationship between better access to the cluster and the declared interest relative to it, reflect this possibility. Therefore, policymakers could intervene by offering guidance relative to the benefits of the presence of cultural venues or maintaining several aspects of the policymaking iter top-down so as to ensure that the residents of the deprived neighborhoods get involved in the provision of cultural institutions.

Moving beyond the speculations, the matter is complex and deserves in-depth research. What the present study points out is that to allow the museums to fulfill a more relevant role in the city's different communities' life, as incentivized by their new definition, involving the communities in the decision-making processes relative to their provision could be an important starting point. Moreover, it would ensure that all the voices are heard and eventual unbalances addressed.

Conclusion

The purpose of this study is to enrich the literature relative to cultural participation and its determinants. More specifically, it contributes to the existing literature in two ways: on the one hand, by substantiating with additional empirical evidence the relevance of geographical and infrastructural factors in the residents' behavioral patterns relative to visiting cultural venues; on the other, by deepening the understanding of how the urbanistic policy of museums' clustering can affect said patterns. In order to do so, the research adopted the Museumpark of Rotterdam as a study case. Framing the analysis through Feder's (2022) concept of access opportunity and Ang's (1991) institutional point of view toward the audience, the study calculated accessibility indexes for each district of Rotterdam and used them to perform multiple logistic regressions and correlation analysis. According to the sub-questions building the research questions, the analyses assess how living in an area with better access opportunity to the cluster affects the likelihood of visiting the cluster's museums at least once throughout a year, the frequency of the visits, and the interest perceived for the museums.

Looking at the research question - *what are the effects of access opportunity on Rotterdam's residents' attendance at the museums of Museumpark?* – in light of the analyses results, the study points out that access opportunity significantly affects the residents' behavior by accepting all the tested hypotheses. Not only access opportunity has a significant relationship with all the variables investigated in the analyses, but it also appears to be positively related to all of them. This means that living in a neighborhood closer and better connected to the museum cluster positively affects the probability of visiting one of its museums at least once a year, the frequency of the visits throughout the year, and the interest perceived for the museums. In this sense, it can be argued that clustering museums can create unbalances in the residents' opportunity to participate in this aspect of the city's cultural life. This dynamic calls for broader considerations relative to the policymaking approaches to adopt when issuing urbanistic cultural policies and the conception of the audiences entailed by them, especially considering the current evolution of the museum institutions' role in society.

Considering the purpose of the study, looking at the research problem from the perspective of Feder's (2022) access opportunity dimension proved to be very suitable. Moreover, the adjustments made to include the role of transportation means and the availability of leisure time as determinant factors in it enhanced its complexity and offered a more comprehensive framework to look at the infrastructural constraints potentially limiting the

individuals. The decision to focus on audiences and adopt Ang's (1991) institutional point of view suited the research equally well, resulting insightful both for the configuration of the analysis and its discussion. In the former's case, its homogenization of the sociological characteristics of the audiences allowed us to highlight the relevance of infrastructural factors in their decision-making process. When discussing the results, understanding the cultural policies such as museum clustering in the light of the institutional point of view, made it possible to identify a potential source of inefficiencies in the provision of cultural goods and services. However, physically visiting museums represents only a part of the wide array of activities that can be grouped under the term cultural participation. In this sense, deciding to focus only on the effect that access opportunity has on physical audiences is a limitation entailed in the choice of the theoretical approach.

Reflecting on the choice of the methodology, the methods adopted in the study – logistic regression and Spearman's R correlation analysis – also resulted adapt to the study. Despite the limitations inherent to the sample size and its representativeness, it was possible to identify multiple highly significant relationships between the variables investigated. Moreover, its recurrent application (Brook, 2010; Brook, 2013; Brook, 2016) in this type of research (especially for what concerns logistic regressions) implies considerable measurement validity (Bryman, 2012).

The study's outcomes suggest multiple paths for further research. In the first place, it would be of great interest to replicate the analysis in collaboration with both governmental and cultural institutions. This collaboration would enable the researchers to reach a broader pool of respondents and ask them more questions, so to create a more representative dataset and include further control variables. This could show how the results might change and whether it is effectively possible to claim with certainty that clustering museums magnifies the effect of access opportunity on the residents, thus representing an even stronger catalyst for unbalances between the city's residents. In this vein, it would also be relevant to assess to what extent museum clusters contribute to another 'spatial dilemma' (Bianchini, 1999) such as gentrification. Moreover, it could be interesting to study how other forms of cultural participation are affected by the opportunity to access cultural venues. At last, to evaluate possible alternative policy approaches, it could be very interesting to study the outcomes of policies developed with a cultural planning approach and assess to what extent they enhance the participation of the residents in the city's cultural life.

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A. Survey questions

Dear respondent,

the present survey is functional to the data collection of my master thesis, which investigates the effect of museum clusterization on the attendance of residents. More specifically, it aims to assess whether agglomerating museum institutions in an area of the city can affect the attendance of the residents depending on the proximity of their neighborhood. To do so, I focus on Rotterdam's Museumpark and inhabitants as a case study. Therefore, when the survey asks about museums it refers to de Kunsthal, het Nieuwe Institute, Huis Sonneveld, Museum Boijmans van Beuningen, Depot Boijmans van Beuningen, het Chabot Museum, and Natuurhistorisch Museum Rotterdam.

By filling out this survey you agree to the processing of the information for my research paper. None of this information will be used for other purposes or forwarded to third parties. Your responses will remain anonymous. By proceeding with the survey, you consent to participating in this research.

Thank you very much for your participation!

For any question or remark You can contact me at the following email: 664045md@eur.nl

a) In what neighborhood do you live?
b) I am interested in visiting Museumpark's museums: 1-5 (1= strongly disagree; 2= disagree; 3= neither agree nor disagree; 4= agree; 5= strongly agree) (Are you attracted by the Museumpark?)
c) During the last 12 months, how many times have you visited a museum?
d) During the last 6 months, how many times have you visited a museum?
e) During the last month, how many times have you visited a museum?
    a. In case of three 0s: What are your main reasons for not attending? (Max 5 keywords)

b. In case of attendance: Did you benefit of special tariffs?

f) What means of transportation would you use to go to Museumpark?

g) Do you have access to: a) a car; b) a scooter; c) a bicycle

h) Do you have an OV-chip card?

    a. Do you benefit from subsidies for public transports?

    b. Which one(s)?

i) What is your age?

j) Which of the following ranges describes better your annual income (considering all forms of income): 0-15000; 15000-30000; 30000-45000; 45000-60000; 60000 +; Prefer not to answer

k) What is your highest completed education? a) Secondary education; b) Bachelor degree; c) Master's degree; d) Doctorate

l) Which of the following categories best describes your employment status? a) Employed, working 40 or more hours per week; b) Employed, working 1-39 hours per week; c) Not employed, looking for work; d) Not employed, not looking for work; e) Retired; f) Student

B. Accessibility Index Formula (Brook, 2016)

$$A_i = \sum_j \left(\frac{W_j}{d_{ij}} \right)$$

"Where A_i is the accessibility index for *neighborhood* i, d_{ij} is a function of the cost of travel or distance from the population centroid of *neighborhood* i to the postcode of venue j, and W_j is a weighting for venue j, normally a measure of the size of the venue" (Brook, 2016, p. 25). In the form revisited for museum clusters adopted for this study, W_j is held constant.

*Italics substitute abbreviation used by the author.

Table 5.1. Accessibility indexes for Rotterdam's districts

A Indexes	District	Walking	Car	Bike	PT	AvA
	1	20	50	100	25	48,75
	2	3,57	12,5	12,5	9,09	9,42
	3	1,19	7,14	3,85	2,27	3,61
	4	3,45	11,11	11,11	4,38	7,51
	5	1,37	5,88	4,76	2,86	3,72
	6	2,08	8,33	6,66	6,66	5,93
	7	2,63	8,33	8,33	4	5,82
	8	1,75	9,09	6,25	4,16	5,31
	9	1,89	7,69	6,66	2,86	4,76
	10	1,96	8,33	6,25	4,16	5,18
	11	1,11	6,67	4,16	2,5	3,61
	12	1,2	6,67	4,16	2	3,5
	13	1,43	6,25	5,26	5,26	4,55

Table 5.2. List of the regression models' variables

Variable	Description	Type
Access1	Resident in an area with the best or worse access	Dummy
Interest	Interest for the museums	Ordinal
Visitx3	Has been to a museum in all of the considered periods	Dummy
DVisit12	Has been to a museum in the last 12 months	Dummy
Car	Has access to a car	Dummy
Bicycle	Has access to a bicycle	Dummy
OV	Subscribed to public transportation	Dummy
Secondary Education	Max level of education: Secondary education	Dummy
Bachelor	Max level of education: Bachelor	Dummy
Master's	Max level of education: Master's	Dummy
Doctorate	Max level of education: Doctorate	Dummy
IncomeA	Income equal to or above the national average	Dummy
IncomeB	Income below the national average	Dummy

Table 6.1. Likelihood of visiting a Musempark's museum at least once a year (infrastructural variables only)

Independent Variable	Estimate	P-value	PseudoR2
Intercept	-0,357	0,808	0,096
Access1	1,381	0,000***	
Car	-0,894	0,080 .	
Bicycle	0,226	0,616	
OV	0,438	0,761	
Level of significance: '***' =0, '**'≤0.01, '*'≤0.05, '.'≤0.1			

Table 6.2. Likelihood of visiting a Museumpark's museum at least once a year (all variables considered)

Independent Variable	Estimate	P-value	PseudoR2
Intercept	-0,933	0,602	0,133
Access1	1.152	0,006**	
Car	-1,073	0,073 .	
Bicycle	0,236	0,623	
OV	0,512	0,73	
Secondary Education	1,16	0,303	
Bachelor	1,525	0,168	
Master's	2,273	0,063 .	
Doctorate	1,244	0,532	
IncomeA	-0,562	0,62	
IncomeB	-0,938	0,317	
Level of significance: '***' =0, '**'≤0.01, '*'≤0.05, '.'≤0.1			

Table 6.3. Frequency of the visits (infrastructural variables only)

Independent Variable	Estimate	P-value	PseudoR2
Intercept	-15,939	0,988	0,071
Access1	1,202	0,012**	
Car	-0,8523	0,281	
Bicycle	0,402	0,504	
OV	13,504	0,99	
Level of significance: '***' =0, '**'≤0.01, '*'≤0.05, '.'≤0.1			

Table 6.4. Frequency of the visits (all variables considered)

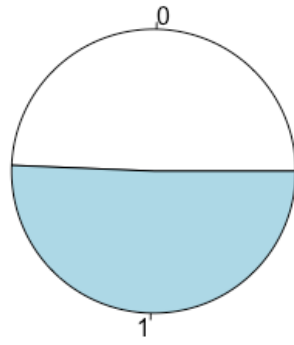| Independent Variable	Estimate	P-Value	PseudoR2
Intercept	-16,022	0,992	0,11
Access1	1,260	0,018*	
Car	-0,886	0,293	
Bicycle	0,465	0,457	
OV	14,661	0,993	
Secondary Education	0,228	0,863	
Bachelor	0,208	0,871	
Master's	-0,0278	0,984	
Doctorate	-14,731	0,993	
IncomeA	-0,800	0,404	
IncomeB	-1,598	0,049*	
Level of significance: '***' =0, '**'≤0.01, '*'≤0.05, '.'≤0.1			

Table 6.5. Correlation between better access area and perceived interest in the Museumpark's museums

Spearman's Rho		P-value
	Interest	0,006**
Access1	0,221	
Level of significance: '***' = 0, '**'≤ 0,01, '*'≤ 0,05, '.'≤ 0,1		

Respondents per Access Area

0 = Worst access, 1 = Best access