

**Making Sense of the Environment: Investigating the Locational Patterns of Cultural
Organizations in Southeast Michigan**

WORKING PAPER

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Making Sense of the Environment: Investigating the Locational Patterns of Cultural Organizations in Southeast Michigan

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Abstract: This article relies on the resource dependency and legitimacy theories as two complementary perspectives that explain the importance of public access and audience diversity for the survival and long-term sustainability of cultural organizations. Relying upon the sample of 335 arts and cultural organizations located in Metropolitan Detroit, we used the GIS-modelling approach to develop an index of public access to the cultural sector and its five sub-fields (visual arts, science, performing arts, historical organizations, and libraries). The U.S. Census Bureau data was further used to analyze how accessible cultural institutions are to the traditionally underserved populations. The analysis revealed that cultural institutions are unevenly distributed in the geographic area, and that certain groups of the population are at a greater disadvantage in terms of their access to particular types of cultural amenities. The article discusses implications of the findings to cultural managers, donors, and policymakers and suggests future research directions.

Keywords: organizational legitimacy, resource dependency, long-term sustainability, public access, audience diversity, arts and culture organizations, GIS-modelling.

Executive Summary

Arts and culture organizations are crucial elements of sustainable local communities; however, the very sustainability of cultural organizations is conditioned upon the type of communities in which such organizations are located. Continuous demographic changes in local communities present a challenging task for public and nonprofit cultural organizations. In post-industrial cities, many of these institutions face severe survival pressures. In response to such pressures, many organizations develop innovative programs and outreach methods to meet the needs of their existing stakeholders while diversifying to include new stakeholders. The ability to achieve greater audience diversity, however, is dependent upon the access structure of individual organizations as well as the sector collectively. If the critical publics upon which those organizations depend cannot readily access them, organizations will lack access to resources and will be unable to demonstrate their moral worth or merit. This sponsored project examines the relative extent and dimensions of access for the cultural sector organizations as an important condition for their survival and long-term sustainability. The main research questions investigated are: What is the capacity of the cultural sector and its sub-sets to ensure inclusive outreach in a given geography? Are there groups of the population whose lack of access to cultural institutions results in their being ‘underserved’?

The study conducted on the sample of 335 public and nonprofit cultural organizations from five creative sub-sectors located in the urbanized counties of Metropolitan Detroit (Wayne, Macomb, Oakland, and Washtenaw). In this number we have sought to capture all public and nonprofit cultural organizations that fit the sampling frame in these four counties. Organizations in the sample comprise five sub-sectors that represent major areas of arts and cultural activity in the region: 28 visual arts organizations; 15 science organizations; 87 music and performing arts organizations; 70 historical organizations, and 135 libraries.

The sample included non-commercial arts and culture organizations that pursue public service missions. These organizations are either incorporated nonprofits or public cultural organizations, such as, for example, public libraries and municipal historical museums. The sample excludes narrowly positioned member-serving organizations (e.g. church choir, ethnic cultural organizations), arts and culture businesses, individual artists, advocacy organizations and professional alliances, fundraising organizations (e.g. friends groups), as well as seasonal events (e.g. festivals, celebrations, temporary exhibitions). Additionally, only organizations that had a clearly identifiable geographical location (address) in the four-county area of Metropolitan Detroit were included in the study. Touring organizations were excluded from the sample, unless they had a permanent location where members of the public could find them.

As the first step of the study, we explored general locational patterns of cultural organizations in Metropolitan Detroit in order to identify areas with high and low concentration of institutions. At this stage we relied on the Kernel Density analysis that uses physical addresses to determine the number of organizations located within a given area. This approach produced raster maps (also called heat maps) for the entire cultural sector as well as for the five sub-sectors.

As the second step of the study, we relied on the GIS-modelling approach to construct an index of public access to the cultural sector and its sub-sectors as an aggregated score that each Census tract in the region of the study obtained based on the following six equally weighted factors:

1. Free vs. paid admission policy.
2. Walking distance.
3. Biking distance.
4. Driving distance.
5. Connection by transit service.
6. Access to private cars.

As a result, we obtained six access maps: one for the entire cultural sector, and five for each of the sub-sectors. The outcome of this approach is 6 access areas (access scores 1, 2, 3, 4, 5, 6) that are collections of Census tracts with similar levels of access. Additionally, we relied on the GIS software Anselin Local Moran's I to calculate measures for each Census tract, which indicate if the access index scores of the immediately surrounding Census tracts are similar to the index score of the tract being studied. This has produced six additional maps displaying statistically significant clusters of tracts with high access index values (cultural districts) and statistically significant clusters with low access index values (cultural deserts).

As the final step of the study, we investigated the accessibility of the cultural sector and its sub-sectors to different socio-demographic groups in the population by compiling Census data to create socio-demographic profiles of each area. This was done by assigning an access value to each Census tract within the geographic boundaries of Metropolitan Detroit, and accumulating across those Census tracts the socio-demographic characteristics of the areas under the same access index value. For most of the socio-demographic variables, we used the raw data counts for each tract divided by that tract's total population to calculate summary estimates for the groups of tracts that share the same index score. The exceptions were the population size that was reported as total population in a given geographical area, and the medians of the medians for household income and age. This has allowed constructing six access tables for the entire cultural sector and the five sub-sectors that match the level of access (1 – lowest, 6 - highest) with the aggregated socio-demographic profile of the areas located within the six access zones.

The results of this study show that arts and culture organizations are generally well-positioned to serve substantial proportions of the Metropolitan Detroit population; however, certain groups of the population are at a greater disadvantage in terms of their access to particular types of cultural amenities. In particular, consistent access deficiencies across all sub-fields of arts and culture are observed for the communities in Metropolitan Detroit that have higher percentage of minorities, as well as higher percentage of less educated people. Therefore, improving access for these two groups of population appears to be most critical. Other, less consistent, access deficiencies indicate that populations that have lower socio-economic status and income, as well as lower employment, may, in fact, also be at a greater disadvantage in terms of access to several types of arts and culture organizations. Overall, we found some evidence of an 'elitist' access structure that follows higher levels of education and higher social status.

These findings imply that, while moral legitimacy is an important pursuit for cultural organizations that aspire to achieve long-term sustainability, organizations might be underutilizing an important community resource – diverse audiences – that would allow implementing their legitimacy goals in practice. Alongside the issues with the normative dimension of legitimacy, we also find some evidence of more instrumental, elite-type considerations that may be influencing arts and culture sector's access structure. Therefore, from a normative point of view, it would be important to overcome the existing access barriers in

order to enhance the ability of arts and culture organizations to act as socially responsible and, ultimately, sustainable organizations.

By offering an innovative way of defining and describing the accessibility of culture as a community resource to the public, this study contributes to scholarship in multiple ways. First, the study's methodology contributes to the literature on community resource accessibility by introducing a comprehensive, multi-component, index of access that could be utilized in future studies of arts and culture accessibility beyond Metropolitan Detroit, as well as studies of accessibility of other types of community resources. Second, by investigating the potential of arts and culture organizations to pursue two critical pillars of organizational legitimacy – public access and audience diversity – the study sheds more light on the application of the legitimacy theory. Access index analysis also indicates that cultural organizations partially follow locational patterns along the lines of population size, wealth concentration, county seat presence, thus supporting basic assumptions of the resource dependency theory about organizations choosing locations with access to greater resources.

The study's findings imply a window of opportunity for cultural organizations, donors, and policy-makers. Some possible ways of improving public access to cultural organizations in the urbanized counties of Metropolitan Detroit may include such institutional policies as offering free admissions and/or subsidized access, especially for people with lower socio-economic status, as well as increasing public outreach in geographic areas with high concentration of minority populations and populations with lower levels of education. Particularly useful could be the early outreach programs in public schools, in order to provide access and cultivate cultural appreciation skills among young people early on in their lives. Additionally, a possible policy intervention that may help to reduce the existing access barriers would be improving transportation options for low and medium access Census tracts to ease access to cultural institutions, which may include both better public transportation networks as well as donor-supported transportation to assist cultural institutions with their public outreach efforts. Moreover, considering the low number and lower accessibility of science organizations in Metropolitan Detroit, it would be beneficial to support the creation of new science institutions in the area.

INTRODUCTION

The profound connectedness that exists between cultural organizations and their communities is a blessing in disguise. On one hand, arts and culture organizations are crucial elements of sustainable local communities (Kim, 2016; LeRoux & Bernadska, 2014; Moldavanova, 2013, 2016; Nurse, 2006; Rushton & Landesman, 2013; Throsby, 1995; Tubadji, Osoba, & Nijkamp, 2015). On the other hand, the very sustainability of cultural organizations is conditioned upon the type of communities in which such organizations are located, and from which they derive various forms of capital, such as economic, human, and social (Grodach, Currid-Halkett, Foster, & Murdoch III, 2014; Moldavanova 2016; Moldavanova et al., 2017).

Continuous demographic changes in local communities present a challenging task for public and nonprofit cultural organizations. Unlike more high revenue, private creative industries that often have the capacity to choose their location, most public and nonprofit cultural organizations rely heavily on fixed capital that ties them to their historic locations (Brooks & Kushner, 2001; Chang & Lee, 2003; Evans & Foord, 2008; Grodach, 2016; Grodach, Currid-Halkett, Foster, & Murdoch III, 2014; Mommaas, 2004; Redaelli, 2012). The majority of long-standing cultural organizations were established in certain geographic locations, mostly urban centers, by elites from former generations at the time of the Industrial Revolution or during periods of urban prosperity and growth. In post-industrial cities, many of these institutions face severe survival pressures due to the increased competition for funding, reduction in the attendance rates, narrowing of the elites on which they used to depend, and the aging of their core audiences and supporters (Moldavanova, 2016; Moldavanova & Goerdel, 2018; Mommaas, 2004; Toepler & Wyszomirski, 2012).

These problems threaten the very sustainability of cultural organizations, providing incentives for them to develop innovative programs and outreach methods to meet the needs of their existing stakeholders while diversifying to include new stakeholders (Azmat, Fujimoto, & Rentschler, 2015; Borwick, 2012; Graves, 2005; Johanson, Glow, & Kershaw, 2014; McCarthy & Jinnett, 2001; Moldavanova, 2016; Moldavanova & Goerdel, 2018). In many cases, the stakeholder diversification agenda in cultural institutions is promoted by foundations and donors (Toepler & Wyszomirski, 2012). However, greater focus on the needs of stakeholders by cultural organizations is also the evidence of their own strategic responses to external and internal pressures (Bryson, 2004; Koteen, 1997; Kotler, Kotler, & Kotler, 2008; Varbanova, 2013), which provides access to critical resources needed for organizational survival (Pfeffer & Salancik, 1978). Moreover, public access and commitment to audience diversity could also be viewed as two critically important values that convey moral legitimacy on public service organizations (Dowling & Pfeffer, 1975; Pfeffer & Salancik, 1978; Suchman, 1995).

The ability to achieve greater audience diversity, however, is dependent upon the access structure of individual organizations as well as the sector collectively. If the critical publics upon which those organizations depend cannot readily access them, organizations will lack access to resources and will be unable to demonstrate their moral worth or merit. The goal of this article, therefore, is to examine the relative extent and dimensions of access for the cultural sector organizations as an important condition for their survival and long-term sustainability. The main research questions investigated are: What is the capacity of the cultural sector and its sub-sets to ensure inclusive outreach in a given geography? Are there groups of the population whose lack of access to cultural institutions results in their being ‘underserved’?

The article reports the results of the study conducted on the sample of 335 public and nonprofit cultural organizations from five creative sub-sectors located in the urbanized counties of Metropolitan Detroit. To explore the capacity of the cultural sector to ensure greater audience diversity and public access, we use a GIS-modelling approach to develop an index of public access that takes into account institutional admissions policy, the physical characteristics of a location, and the availability of, and access to, transportation. Our analysis shows that different types of cultural institutions are unevenly distributed in the geographic area of interest, and there are clear areas of high and low concentration of organizational types. At the same time, diverse social and economic groups – potential audiences – populate both cultural districts and cultural deserts, thus creating uneven patterns of access. When used in combination with demographic data, the index of access reveals that certain groups of the population are at a greater disadvantage in terms of their access to cultural sub-sectors. Therefore, cultural organizations may be underutilizing an important community resource – diverse audiences – that would allow strengthening their resource base and pursue legitimacy goals in practice.

This article first introduces our theoretical assumptions and provides background information about cultural organizations and the typical pressures that they face. We then explain our research framework, including the sampling method and the construction of an index of public access to cultural organizations. Next, the article reports a) the results of the density analysis for the entire cultural sector as well as subsets of cultural institutions, as a way to understand general locational patterns of such organizations, b) the more nuanced findings about locational patterns obtained by designing and implementing the index of access, and c) the results of applying the index of access approach to analyzing the public accessibility of cultural organizations to diverse population groups. We further discuss how organizational locations

influence their capacity to provide access to various forms of art and culture for diverse patrons and constituencies. The concluding part discusses future research directions and implications of the study's findings to policy-makers, donors, and cultural managers.

THEORETICAL FRAMEWORK

Cultural organizations are important parts of the urban social ecology. They participate in local policymaking, contribute to local economic development and revitalization, engage in creative place-marketing, encourage innovation and creativity, stimulate cultural diversity, foster civic engagement and community level social capital, and attract people from other creative professions (Borwick, 2012; Florida, 2002; Grodach, 2014, 2016; Hesmondhalgh & Pratt, 2005; LeRoux & Bernadska, 2014; Pratt, 2008; Scott, 2006; Strom, 2003; Wilks-Heeg & North, 2004). Cultural institutions play these important roles in different types of urban environments, from flourishing urban centers with high concentrations of creative capital, to revitalizing communities and struggling post-industrial cities, such as Detroit, Cleveland, and Pittsburgh.

Despite their significance for urban sustainability, cultural institutions themselves face numerous sustainability pressures, such as declining arts participation, increasing competition with the entertainment industry, technological changes, economic recessions, and the decline of both public and private support for the arts (McCarthy, Ondaatje, & Novak, 2007; Moldavanova, 2016; Toepler & Wyszomirski, 2012). The issue of sustainability is particularly salient for organizations promoting classical forms of art (DiMaggio & Mukhtar, 2004), which are typically represented by the nonprofit cultural sector (Toepler & Wyszomirski, 2012). Cultural organizations developed a variety of responses to the above pressures, of which the stakeholder diversifications strategies are among the most common (Moldavanova & Goerdel, 2018).

Two theoretical lenses are particularly useful in describing organizational behavior under stress, and how organizations develop coping strategies: 1) the resource dependency perspective that assumes interdependency between organizations and their wider operational environments, including the ability of organizations to respond to external pressures in strategic ways by deriving resources from their environments, and 2) organizational legitimacy perspective that focuses on normative aspects of organizational behavior by recognizing that organizational legitimacy in the public and nonprofit sectors, as a necessary condition for organizational survival, is not necessarily about the economic resources derived by organizations, it is rather about the congruence between organizational and social norms and values. The resource dependency and legitimacy perspectives offer complementary views on how public access and audience diversity contribute to organizational survival and long-term sustainability.

Resource Dependency Perspective

Resource dependency perspective implies that the ability of organizations to effectively derive various resources from the external environment is of key importance for organizational survival (Aldrich, 2008; Pfeffer & Salancik, 2003). Since arts and culture organizations the U.S. receive negligible financial assistance from the government and rely significantly on private sources of support (Toepler & Wyszomirski, 2012), audience is a key resource for their survival. Therefore, arts and culture organizations have been in constant search of innovative ways to expand, diversify, and broaden their audiences (McCarthy & Jinnett, 2001; McCarthy, 2004; McCarthy, Ondaatje and Novak, 2007). In many cases, the diversity agenda in cultural institutions is promoted by foundations and donors that strive to encourage more inclusive outreach by supporting relevant programs (Toepler & Wyszomirski, 2012).

Scholars of nonprofit organizations, particularly the ones working in the strategic management tradition (Brown, 2010; Bryson, 2004; Varbanova, 2013), have stressed the importance of identifying and serving the needs of multiple stakeholders as an important factor of organizational success. This suggests that greater focus on stakeholder diversity is of strategic importance for the current and future viability of arts and culture organizations. One way of ensuring greater diversity of organizational stakeholders is to design more inclusive public outreach (Moldavanova, 2016), and there is a growing body of the literature that discusses innovative approaches to public outreach developed within the sector (Azmat, Fujimoto, & Rentschler, 2014; Johanson, Glow, & Kershaw, 2014; Kotler, Kotler, & Kotler, 2008; McCarthy & Jinnett, 2001; Moldavanova & Goerdel, 2018).

On the other hand, while serving broad and diverse groups of stakeholders is likely to lead to more diverse organizational support networks in the longer-run, focusing primarily on resourceful and powerful stakeholders may also lead to greater immediate organizational benefits. In the case of classical arts and culture organizations, focusing on highly educated and socially and economically advantaged patrons and donors is part of their historical legacy. In the long-run, however, such an 'elitist' orientation that this sector is credited for (DiMaggio & Mukhtar, 2004), may cause more harm than benefit thus questioning the sector's own prospects for long-term sustainability. Overall, however, the engagement of arts and culture organizations in audience diversifications strategies could be considered as a pragmatic response to external pressures that those organizations face, and as a way of diversifying the existing resource base.

Organizational Legitimacy Perspective

The focus on audience development programs as a pragmatic management strategy would be incomplete without discussing a broader normative imperative of the audience

development initiatives – the question of representation and access, and the importance of this imperative for the longer-term sustainability of arts and culture organizations. Thus, aside from praising wider, broader, and more inclusive outreach as a way to achieve strategic advantage, accessibility of cultural institutions for various groups of population is an important ethical concern for organizations that aspire to enhance their own legitimacy (Dowling & Pfeffer, 1975; Suchman, 1995).

Organizational legitimacy is defined, "...[a]s a condition or status which exists when an entity's value system is congruent with the value system of the larger social system of which the entity is a part. When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy." (Dowling & Pfeffer, 1975, p. 122) According to the legitimacy theory, in response to changes in social perceptions about organizational activities and images, organizations engage in the management of such perceptions in order to achieve legitimacy (O'Donovan, 2002), which may include both conforming to and trying to alter social expectations and values (Dowling & Pfeffer, 1975). In return, organizations with greater legitimacy enjoy positive social reputation, which may lead to the improved access to resources.

Organizational legitimacy itself, however, is considered a critical resource for organizational survival (Dowling & Pfeffer, 1975; O'Donovan, 2002), as well as the longer-term sustainability of organizations (Moldavanova, 2016; Thomas & Lamm, 2012). In the public and nonprofit sectors, organizational legitimacy is not limited to economic resources that organizations can obtain from their environment on a competitive basis; rather it is rooted in congruence between the normative environment of an organization and its behaviors, products, or image (Suchman, 1995). Subsequently, organizations with greater levels of legitimacy are

capable of gaining both their stakeholder and broader public trust, thus justifying the need for their very existence (Moore, 2000).

The importance of legitimacy for the survival of organizations has been demonstrated in many previous studies (Dowling & Pfeffer, 1975; O'Donovan, 2002; Suchman, 1995; Thomas & Lamm, 2012), and there are also good examples of how legitimacy works as a catalyst for long-term organizational sustainability. In the urbanized area of Metropolitan Detroit, for example, several notable long-standing organizations have experienced critical, 'life-threatening,' events. For instance, both Belle Isle Aquarium and the Detroit (now Michigan) Science Center were temporarily closed due to their financial problems and the inability of their leadership to properly establish organizational legitimacy. On the other hand, the Detroit Institute of the Arts (DIA), whose collections were under threat to be sold as a result of the City of Detroit's bankruptcy, was able to effectively capitalize on its stakeholder relationships and establish its normative significance for the city's current and future generations of residents (Stryker, 2015)¹.

One way for organizations to demonstrate their normative legitimacy to their stakeholders would be by pursuing ethical values in practice. Public access and commitment to audience diversity are two critically important values that convey moral legitimacy on public service organizations (Suchman, 1995). Therefore, it would be fair to expect that non-commercial arts and culture organizations would be motivated to pursue these two values via deliberately designed organizational practices, thus enhancing their own organizational legitimacy and improving their chance for survival and long-term sustainability. Moreover, an audience development agenda could be seen as part of organizations' ethical commitment to future generations (Moldavanova 2016).

While the commitment of organizations to public access and audience diversity – for both resource-related and normative reasons – has the potential to enhance the very prospects for organizational survival and sustainability, the ability to achieve greater audience diversity and provide more access is dependent upon the access structure of individual organizations as well as the cultural sector collectively. If the critical publics upon which those organizations depend cannot readily access them, organizations will lack access to diverse resources and will be unable to demonstrate their moral worth.

The successful implementation of the audience diversification strategies is conditioned upon the features of the urban environment in which cultural organizations exist, and cultural organizations' own awareness of their publics, including immediate stakeholders and the community at large. One obstacle that limits the ability of cultural institutions to achieve greater audience diversity is the lack of studies that address the question of the geography of the public outreach, and how a location influences the capacity of the cultural sector to meet the audience development needs. Therefore, the main research questions investigated in this article are: What is the capacity of the cultural sector and its sub-sets to ensure inclusive outreach in a given geography? Are there 'underserved' groups of the population resulting from a lack of access to cultural institutions? To answer these questions, we examine the relative extent and dimensions of access for the cultural sector overall and for the different sub-sets of cultural organizations as an indicator of their legitimacy.

RESEARCH METHODOLOGY

Insights from Previous Cultural Mapping Studies

In recent years, there have been several notable studies that engage in cultural mapping with the purpose of exploring the locational patterns of cultural industries (Chang & Lee, 2003;

Evans & Foord, 2008; Grodach, 2014, 2016; Grodach, Currid-Halkett, Foster, & Murdoch III, 2014). These studies focus on mapping the sector's location against other community characteristics, such as the concentration of other industries, population and housing growth, availability of donors, etc. (Chang & Lee, 2003; Evans & Foord, 2008). The cultural mapping studies have also been focused on predicting the vitality of the cultural sector depending on the properties of urban environments (location size, economic and demographic factors) (Grodach, 2016). These studies justify the development of more localized, place-specific, approaches to cultural policy. What is lacking in the literature on locational patterns of cultural institutions is the needed attention to the question of audience diversity and how well-positioned cultural institutions are to serve diverse groups of population.

Additionally, scholars have typically mapped 'cultural industries' as a whole, including both traditional forms of culture and arts and more commercial industries (media firms, telecommunications, consulting firms). This non-differentiated approach to cultural mapping does not take into account substantial differences in the challenges of access that older and more classical nonprofit culture and arts institutions face as compared to their younger and more dynamic commercial counterparts. Finally, scholars tend to use either physical locations of individual organizations or a generalized locational quotient for the sector/sub-sector (a measure that derives from comparing specific locations to national averages) for mapping the arts and culture institutional locations (Grodach et al., 2014). These approaches are helpful for predicting the locational patterns of individual cultural organizations and the cultural sector overall; however, they neglect the presence of other factors that may be equally important for describing the access structure, such as, for example, the physical infrastructure that supports or obstructs access.

Access Index as an Alternative Way of Defining and Approximating Access

This article seeks to address the aforementioned gaps in the literature on the geography of the cultural sector by designing and implementing an index of access that takes into account admissions policy, the physical characteristics of a location, and the availability of, and access to, transportation. The purpose of the index is to explore the existing geographical, institutional, and social barriers limiting access to cultural organizations, analyze the public accessibility of these institutions, and develop recommendations regarding access to cultural organizations. To achieve this goal, we consider the social and demographic profile of local communities and explore the availability of cultural amenities to various segments of the population. Specifically, we focus on those groups of population that are traditionally underrepresented among cultural organizations' audiences.

Our approach is based on two assumptions: a) the social and demographic profiles of local communities undergo dynamic changes, while core audiences of many cultural organizations often remain stable; b) many long-standing cultural organizations are located in certain areas because of historic development patterns. These assumptions are consistent with previous studies that show that certain geographic areas tend to specialize in a particular set of industries (Brooks & Kushner, 2001; Chang & Lee, 2003; Evans & Foord, 2008; Grodach, 2016; Grodach, Currid-Halkett, Foster, & Murdoch III, 2014; Mommaas, 2004; Redaelli, 2012), and that industry location may be dynamic (Grodach, 2016). Indeed, as cities and regions have expanded, the original location may no longer serve the community and may fail to adequately reflect current and future needs of local communities. While the actual audiences of cultural organizations, particularly in slowly transforming urban areas such as Detroit, may differ from

the social and demographic profile of the organization's communities, engaging with the diverse audiences should, nevertheless, be an important part of cultural organizations' long-term legacy.

This article explores the accessibility of culture as a community resource, and we use the terms "cultural districts" and "cultural deserts" to describe geographic areas with different concentration of cultural organizations. Conventionally, cultural districts are defined as areas in which arts and culture facilities serve as the primary attraction (Brooks & Kushner, 2001). We use term "cultural districts" in a slightly different way, to describe areas of high concentration of the cultural sector organizations. We also use the term "cultural desert" to denote areas with low presence of cultural institutions. This terminology is borrowed from previous studies that mapped arts industries (Grodach, 2016), and from the literature on sustainable food and health practices (Adams, Ulrich, & Coleman, 2010; Bertrand, Thérien, & Cloutier, 2008; Cummins, Findlay, Petticrew, & Sparks, 2005; Pearce, Witten, & Bartie, 2006).

Sampling and Data Sources

There are different approaches to conceptualizing creative industries and defining the cultural sector (Moldavanova et al., 2017). For example, Richard Florida uses the term 'creative class' to characterize creative human capital, including people in various creative professions not limited to arts and culture (Florida, 2002). Such a broad approach recognizes the interdependence of different forms of creative activity (artistic, scientific, or economic). Another common approach is to focus on creative industries, including both classical nonprofit arts (e.g., opera, symphony, art museums), and creative businesses such as media arts promotion agencies, private galleries, and experimental arts (Brooks & Kushner, 2001; Currid, 2009; Grodach, Currid-Halkett, Foster, & Murdoch III, 2014; Mommaas, 2004). This latter strategy considers the overall presence and concentration of cultural industries in given locations characterized as

‘innovation districts’ (Grodach, Currid-Halkett, Foster, & Murdoch III, 2014). Scholars employing the innovation district concept tend to focus on ‘cultural clusters’ and generally explore the relationship that exists between such clusters and a variety of community characteristics (Grodach, 2016; Grodach, Currid-Halkett, Foster, & Murdoch III, 2014; Mommaas, 2004).

In this article, we have adopted a mixed approach by focusing on formal organizations that include both classic forms of art and other cultural institutions beyond the arts. We choose to focus on classic forms of culture because these types of organizations are in the greatest need for diversifying their audiences, and are most affected by the historical patterns (DiMaggio & Mukhtar, 2004), as compared to more dynamic cultural industries (media firms, telecommunications, law and other consulting firms). Our sample of organizations includes 335 cultural organizations located in the urbanized counties (Wayne, Macomb, Oakland, and Washtenaw) of Metropolitan Detroit. In this number we have sought to capture all public and nonprofit cultural organizations that fit the sampling frame in these four counties. Organizations in the sample comprise five sub-sectors that represent major areas of arts and cultural activity in the region: 28 visual arts organizations; 15 science organizations; 87 music and performing arts organizations; 70 historical organizations, and 135 libraries.

The sample included non-commercial arts and culture organizations that pursue public service missions, which makes public access and audience diversity important normative imperatives for such organizations. These organizations are either incorporated nonprofits or public cultural organizations, such as, for example, public libraries and municipal historical museums. In order to avoid sample bias, we reviewed organizational missions to make sure that all organizations in the sample aspire to serve public at large. This allowed excluding narrowly

positioned member-serving organizations (e.g. church choir, ethnic cultural organizations), since wider public access does not appear to be an imperative for such organizations. The study also excluded arts and culture businesses whose activities are driven primarily by profit making rather than public serving motives, as well as individual artists, advocacy organizations and professional alliances, fundraising organizations (e.g. friends groups), and seasonal events (e.g. festivals, celebrations, temporary exhibitions). Additionally, only organizations that had a clearly identifiable geographical location (address) in the four-county area of Metropolitan Detroit were included in the study. This included both organizations that have their own premises, and those that perform or exhibit in a clearly identifiable location that belongs to another organization (e.g. church, community center). Touring organizations were excluded from the sample, unless they had a permanent location where members of the public could find them.

The sample of organizations that meet the above criteria was derived from multiple data sources, including the following: 1) membership database of CultureSource – and arts advocacy organization operating in Southeast Michigan, comprised of 120 organizational members; 2) SustainArts Database, comprised of 572 arts, culture, and humanities nonprofits and support organizations in the Detroit Metropolitan Area; 3) Guidestar database of nonprofit organizations in the State of Michigan comprised of 1266 organizations. In addition to the above sources, we conducted several web searches using open source material, such as municipal government web sites, visitdetroit.com, the University of Michigan web site, the Wayne State University's College of Creative Studies' website, and guide2detroit.com. Open search terms used included: "Metro-Detroit Arts," "Metro-Detroit Theaters," "Metro-Detroit Museums," "Metro-Detroit Libraries," "Metro Detroit History," "Metro Detroit Science." Our intent was to collect the universe of organizations that fit the sampling frame. While the search process may have missed

some, our sample is close to the population of public and nonprofit cultural organizations actively operating in the urbanized counties of Metropolitan Detroit and located within the five sub-fields of arts and culture (visual arts, science, performing arts, historical organizations, and libraries).

Data Analysis

The findings reported in this article are based on a two stage analysis that, first, explored general locational patterns of cultural institutions in Metropolitan Detroit, to identify areas with high and low accessibility of institutions. At this stage of the analysis, we used two approaches to mapping the access: traditional density analysis that uses physical addresses to determine the number of organizations located within a given area, and the index of access approach that incorporates several accessibility factors, including institutional admission policy and the presence of transportation infrastructure.

Second, the study examined access of diverse socio-demographic groups to cultural amenities in their immediate geographic area. In particular, we were interested in groups of population that are traditionally considered underrepresented among arts' audiences, such as racial minorities, populations with low socio-economic status and income, and low education. Additionally, we explore access to multigenerational audiences that are linked to arts' organizations survival and longer-term sustainability - older populations as potential donors, and young people as future publics and supporters.

Traditional Approach: Density Analysis. In the first part of the study, density analysis was performed in ArcGIS with the goal of determining saturation levels for all cultural organizations and the five sub-sectors, as a proxy for access. Physical addresses for each of the 335 public and nonprofit cultural organizations verified via Google maps were used as location-

identifiers, as opposed to using organizational legal addresses, which may be different from actual physical locations. We identified individual organizational locations instead of mapping the sub-sectors as a whole, as was done in some previous studies of arts and culture locational patterns (Grodach, Currid-Halkett, Foster, & Murdoch, 2014). Organizational addresses were geocoded into a geographic information system, where each organization was identified by its sub-group (visual arts, science, performing arts, historical organizations, and libraries). We then performed spatial interpolation to determine relative density of organizations from the sector and by sub-sectors, which allowed determining the locations of cultural deserts and cultural districts.

To study the density of organizational locations in a given area, a Kernel Density approach is traditionally used to produce a raster map (also called a heat map), in which each cell of the map is symbolized based on the number of features that are within a fixed search radius from the center of that cell. One limitation of Kernel Density calculations is that the search area can only be circular. However, a straight-line Euclidean distance is often not an accurate representation of how people travel between locations. Taking this shortcoming into consideration, this study used a modified density analysis approach that incorporated the existing street network (Adams et al., 2010; Sparks et al., 2011; Witten et al., 2003).

In our approach, the selected search distance was used to create a 'service area' for each organization's location based on the street network. Overlapping service areas were then symbolized to illustrate the number of organizations within the specified travel distance for each area of the map. The resulting maps show areas with different densities of organizations (see Appendix 1). The search distance of 1.92 miles was selected based on the default bandwidth algorithm used in Kernel Density calculations, which measures the median and standard distance from each of the features to the mean center, to calculate density bands. Density analysis allows

identifying areas of organizational clustering and accessibility to high numbers of cultural institutions using a true driving distance rather than geodesic distance (the shortest path between two vertices). Locations with a heavy density of facilities - districts - are color-coded in red, and locations with a low density of facilities – deserts - have no color. The maps also show transitional areas, with the medium levels of organizational concentrations.

Revised Approach: Access Index. The access index presented in this article employs a community resource accessibility model that builds upon previous studies of access in a variety of community settings, such as education, health, and food (Adams et al., 2010; Bertrand et al., 2008; Cummins et al., 2005; Pearce et al., 2006). Common approaches of measuring access to community resources and amenities include: 1) counting the number of facilities within a given distance from an area of interest (typically, within 500-1500 meters or a 5-10 minute walk); 2) approximating the presence of at least one facility of a given type within a specified distance from an area of interest; 3) measuring distance to the nearest facility of a given type; and 4) calculating percentage of population with access to a community resource in an area of interest (Adams et al., 2010; Bertrand et al., 2008; Pearce et al., 2006; Sparks, Bania, & Leete, 2011; Witten, Exeter, & Field, 2003; Yoon & Srinivasan, 2015).

Building on these previous studies, the index of access advanced in this article is based on the presence (or absence) of at least one facility of a given type (i.e. arts and culture sub-field) within a specified distance from an area of interest. While such an approach is not without limitations, our assumption was that as long as population of a given Census tract has access to at least one type of cultural organization from a given sub-field within the specified access parameters, that sub-field of culture would be considered accessible to the Census tract. In this

approach, we did not account for the quality of cultural institutions or the specifics of their admissions price structure.

Previous studies constructed the distance to a community resource by either using the street network approach that factors in physical access barriers (Adams et al., 2010; Sparks et al., 2011; Witten et al., 2003), or the Euclidean distance (as the crow flies) approach (Bertrand et al., 2008; Sparks et al., 2011). Similar to the density analysis described above, for the access index mapping we chose to rely on the street network approach to measuring distance, since such an approach accounts for various physical barriers, including man-made and natural obstacles to access (e.g. highways, bridges, rivers, lakes, etc.). Moreover, the street network approach relies on actual street maps that members of the public are likely to use as navigation tools for reaching cultural organizations within a given distance from their Census tract.

Additionally, previous studies of access to community resources relied on different methods of aggregating data, including by zip code, tract, block, and even neighborhood (Sparks et al., 2011). However, the lower the level of analysis is, the less secondary data is available for further analyses. Therefore, we chose to focus on the Census tract as the unit of analysis, since our ultimate goal was to examine accessibility of cultural resources to various socio-demographic groups of population, and we could use the Census data for analyzing access at the tract level. We used population-weighted Census tract centroids, rather than geography-based centroids, to measure access.

Scholars of community resource accessibility have used various components for designing their access indexes, such as travel time, distance, availability (or unavailability) of a given resource, and an index was typically obtained as either a sum or a weighted sum of its components (Bertrand et al., 2008; Pearce et al., 2006; Sparks et al., 2011; Witten et al., 2003).

Previous studies have also relied on various means of transportation for approximating public access to a community resource, such as walking, driving, and/or reliance on public transportation (Adams et al., 2010; Bertrand et al., 2008; Pearce et al., 2006; Sparks et al., 2011; Witten et al., 2003; Yoon & Srinivasan, 2015).

Building on the previous literature, the index of access presented in this article is an aggregated score that each Census tract obtains based on the following six equally weighted factors:

- Free vs. paid admission policy (at least one institution of a kind within 0.5 miles of walking distance; coded as 1 for free admission and 0 if there are no institutions with free admission).
- Walking distance (at least one institution of a kind within 0.5 miles from the population weighted center of a tract).
- Biking distance (at least one institution of a kind within 5 miles from the population weighted center of a tract).
- Driving distance (at least one institution of a kind within 30 miles from the population weighted center of a tract).
- Connected by transit service (a bus route runs within 0.5 miles of walking distance from the population weighted center of a tract).
- At least 90 percent of residents have access to a car.

We constructed an index of access for the entire cultural sector and the five sub-fields (visual arts, performing arts, science institutions, historical organizations, and libraries). No weight was applied to any of the six factors, and a Census tract received a point for meeting each of the above criteria. For example, if there was at least one institution of a given type with free

admission located within 0.5 miles of the walking distance from the population weighted center of a Census tract, that tract would receive 1 point for the first component of access. Half a mile was chosen as a walking distance based on the previous studies that determined that this is the outer limit that people will walk to use public transportation (Boarnet et al., 2013).

Access index values range from 0 to 6, with 0 being least accessible area and 6 being most accessible area; however, in our study, no tract scored as 0. The outcome of this approach is 6 access areas (access scores 1, 2, 3, 4, 5, 6) that are collections of Census tracts with similar levels of access. In substantive terms, people living in areas with high access scores have the most access to cultural institutions, and people living in areas with low access scores have low access to such institutions.

The novelty of this approach is that it considers the accessibility of cars and transit service, as well as institutional admissions policy, which the traditional density analysis approach did not include. For example, the access is now explained not only by the distance of a Census tract from a cultural organization's location, but rather by the availability of the transportation infrastructure. That is to say, cultural organizations located further from Census tracts could still be accessible to the population if transportation infrastructure were to become available.

While traditional density analysis reflects the cultural institutions' geographic proximity to each other, the access index scores consider factors beyond the density of institutions to provide a more comprehensive view of each individual tracts' level of accessibility. To further advance this assessment of accessibility, we performed a cluster and outlier analysis to identify cultural districts and cultural deserts that take into account the six accessibility factors contributing to the index score. This analysis goes beyond identifying hot spots where cultural

institutions cluster, and instead determines where people with high access to those institutions are clustered.

Using GIS software Anselin Local Moran's I (Zhang, Luo, Xu, & Ledwith, 2008), measures were calculated for each census tract, which indicate if the access index scores of the immediately surrounding census tracts are similar to the index score of the tract being studied. Z-scores and p-values were then calculated to determine if the tract's Anselin Local Moran's I similarity measure is statistically significant at a 95 percent confidence level. As shown in Appendix 3, statistically significant clusters of tracts with high access index values (cultural districts) are shown in red, while statistically significant clusters with low access index values (cultural deserts) are shown in blue. Also depicted are outliers – tracts with a high access index value that are surrounded by tracts with low values (High-Low Outlier), and conversely, low-access tracts surrounded by tracts with low access index scores (Low-High Outlier).

Accessibility Analysis: Socio-Demographic Factors. In the second part of the study, we explored the accessibility of cultural resources to different socio-demographic groups in the population. Because previous analysis was conducted on Census tracts, we were able to compile data to create socio-demographic profiles of each area and discuss how these areas are different from one another. This was done by assigning an access value to each Census tract within the geographic boundaries of Metropolitan Detroit, and accumulating across those Census tracts the socio-demographic characteristics of the areas under the same access index value.

The socio-demographic characteristics of local communities were derived from the most current Census data (2015), within the following categories: 1) socio-economic status and income (median household income, percent in poverty, percent with Social Security, percent with Food Stamps, percent with disability); 2) employment status (percent of unemployed,

percent in labor force); 3) ethnicity/minority status (percent minority - all Non-Whites; percent Hispanics); 3) age (under 18 years old; 65 years and over); 4) education (percent with less than Bachelor degree); 5) population size. For most of these variables, we used the raw data counts for each tract divided by that tract's total population to calculate summary estimates for the groups of tracts that share the same index score. The exceptions were the population size that was reported as total population in a given geographical area, and the medians of the medians for household income and age. Using medians as opposed to means allowed correcting for the uneven distribution of data and the effect of outliers.

FINDINGS

The first goal of this study was to get a sense of the locational patterns of different groups of cultural institutions in the urbanized counties of Metropolitan Detroit (Wayne, Oakland, Macomb, and Washtenaw counties). To accomplish this goal, we used two approaches to mapping access: a traditional density analysis that uses physical addresses of organizations as access points, and the index of access approach that considers several accessibility factors. The second goal was to examine access to institutional locations by various socio-demographic groups of population. In particular, we sought to examine access for groups of population that are traditionally considered underrepresented among arts' audience, such as racial minorities, people with low income, or low education. We also examined access for groups linked to arts' organizations survival and longer-term sustainability (older populations as potential donors, and young people as future publics and supporters).

Findings from the Density Analysis

Based on the analysis of maps produced via traditional density analysis for the entire cultural sector (map 1 in Appendix 1), cultural resources in the urbanized counties of

Metropolitan Detroit are distributed unevenly, with some counties (Wayne, Oakland and Washtenaw) having greater concentration of organizations as compared to other counties (Macomb). There are two notable cultural districts – Woodward Corridor that includes the parts of the City of Detroit and nearby suburbs, and the City of Ann Arbor (location of the University of Michigan). A less notable cultural district is located in Royal Oak/Bloomfield Hills area (modern-day centers of wealth in Metropolitan Detroit). However, there are also areas within each county that have low concentration of cultural institutions (e.g. parts of the Washtenaw and Macomb Counties).

Overall, the cultural sector in Metropolitan Detroit seems to follow three main locational patterns: 1) historical path (areas with high concentration of organizations tend to be located in the areas of initial population settlement); 2) population size and the presence of governing bodies (areas with high concentrations of organizations tend to be located in the areas of county seat locations), and 3) centers of community wealth. Newer facilities, in particular, appeared to select locations with access to potential donors (where donors had relocated as the city expanded), creating mini-districts in recent suburbs such as Bloomfield Hills (established 1932), Rochester Hills (established 1984) and Northville (established 1955).

Our observations about the importance of historical legacy as well as dependency of organizational locations upon the availability of resources are consistent with previous literature on the location of cultural districts (Brooks & Kushner, 2001; Chang & Lee, 2003; Evans & Foord, 2008; Grodach, 2016; Grodach, Currid-Halkett, Foster, & Murdoch III, 2014; Mommaas, 2004; Redaelli, 2012). Therefore, in line with the resource dependency theory (Pfeffer & Salancik, 1978), there is an indication that organizations may be choosing certain locations due to greater availability of resources in such locations.

Another factor that appears to be important in describing the locational patterns of the cultural sector, although not completely independent from the historical, population, and wealth concentration factors, is the presence of educational infrastructure. In particular, cultural organizations tend to be clustered in the areas of location of major public universities (University of Michigan, Wayne State University, and Oakland University). Our observation about higher density of cultural organizations in areas with the presence of universities is consistent with findings by Florida (2002) regarding the important role of higher educational institutions for creative vitality, and it also supports the resource dependency argument, as higher presence of educational institutions is associated with more educated and, therefore, more resourceful populations.

When comparing density maps for the sub-fields of arts and culture (maps 2-6 in Appendix 1), it becomes clear that visual and performing arts organizations follow locational patterns that are similar to the cultural sector overall, with cultural districts observed in areas of historical settlement, modern day population centers, and areas with high concentration of population wealth. Performing arts organizations are more widely distributed in Metropolitan Detroit as compared to visual arts, and, in addition to the three noted above districts, they have a clearly identifiable cultural district in Plymouth/Northville. Locations of visual arts organizations are sparser, and most of the metropolitan area, with the exception of the three cultural districts, could be considered as an area of low concentration of the visual arts.

Libraries and historical organizations are less concentrated; they are widely distributed in the area and are covering both urban and rural locations. Less numerous - historical organizations - have three clearly identifiable cultural districts – Detroit, Royal Oak, and West Bloomfield. The largest deserts for this type are located in Macomb and the peripheral areas of

Washtenaw counties. More numerous – libraries – are evenly distributed throughout the Metropolitan Area, with lesser concentration of organizations in the rural Washtenaw County. Among all types of organizations, libraries have the largest number of districts. There is a very clear library district in Detroit and also notable districts in Ferndale, Livonia, and Trenton. There is also concentration of libraries in Bloomfield Hills and Ann Arbor.

Science organizations are the least numerous and least concentrated in the area. The largest science district is located in Ann Arbor, and the second largest is in Detroit. Both of these districts are characterized by the presence of large research universities – University of Michigan in Ann Arbor and Wayne State University in Detroit, which, perhaps, signifies strong interconnectedness that exists between educational infrastructure and interest in and support for science. There is at least some presence of science organizations in each of the four counties, but there are also substantial areas of Metropolitan Detroit with no science institutions in close proximity, thus indicating that access to science may be most problematic.

Overall, based on the density analysis, most accessible institutions are those greatest in number (performing arts, libraries, historical organizations), and least accessible organizations are those smallest in number (science centers). All non-arts organizations (history, science, and libraries), which include significant number of younger organizations, seem to have followed population and demand locational pattern rather than historical path. This observation is consistent with Grodarch's study (2016) that discovered the relative mobility of cultural clusters. Density analysis also shows that, comparatively speaking, residents of Macomb County have the least access to the cultural sector. However, there are variations in access depending on the sub-field of culture.

Findings from the Access Index Analysis

Locational maps for the entire cultural sector and the five sub-sectors that utilize the index of access (Appendix 2) reveal a more nuanced picture of the cultural resources accessibility in the urbanized counties of Metropolitan Detroit, as compared to the traditional density analysis. Overall, access is more broadly distributed, which could be attributed to the influence of particular access index components (such as access to, and availability of, transportation), as well as the influence of libraries and historical organizations as the most accessible institutions. Similarly to the density maps, some cultural districts in access maps are located in the areas of wealth concentration; however, there are also high access areas that are not linked to wealth concentration (darker areas on the maps in Appendix 2). High access zones only partially follow locational patterns along the lines of population size, wealth concentration, and the presence of county seats that were identified via the density analysis.

The access map for all cultural institutions (map 1 in Appendix 2) reveals that substantial portions of the Metropolitan Detroit territory have average access to cultural amenities (indexes 3 and 4), and there are also more Census tracts that have high access (indexes 5 and 6) as compared to low access (indexes 1 and 2). Therefore, majority of population in this area has average or high access to cultural amenities. Additionally, access is widely distributed in the four-county area, and there is no county in a particularly disadvantaged position. However, while most cultural districts remain the same as in the density analysis, the City of Detroit itself and parts of the Woodward corridor within the city appear to be in the average access zone (index 3), and could no longer be considered as a cultural district². The application of the multi-component access index approach, therefore, provides a more nuanced picture of access as compared to the density analysis.

Furthermore, based on the cluster and outlier analysis (Appendix 3), we find that the distribution of access index scores across metropolitan Detroit is not random, and that there are areas with significantly higher access to cultural institutions and areas with significantly lower access. Overall, cultural districts are located along the Woodward corridor - from the downtown riverfront through the North End neighborhood of Detroit, and in the municipalities along the corridor north of Detroit through Bloomfield - as well as in Hamtramck, the Grosse Pointe communities, St. Clair Shores, Dearborn, Wyandotte, and Ann Arbor. The Oakland County municipalities just north of Detroit also emerge as hotspots for each of the five cultural subsectors individually. Likewise, the Grosse Pointe communities are hotspots for each subsector, with the exception of science institutions. The Downriver communities south of Detroit are home to districts for visual arts, historical organizations, and performing arts institutions. Cultural deserts are generally located in the municipalities along the outer boundaries of our four-county area.

While the overall access to the cultural sector appears to be widely distributed, when comparing access maps for the sub-fields of arts and culture (maps 2-6 in Appendix 2), there are notable differences in the access depending on the sub-field. For instance, visual arts and science organizations appear to be the least accessible, as evidenced by more than half of the Metropolitan Detroit territory covered with low access zones (indexes 1 and 2) for these sub-fields. Moreover, science institutions do not have areas with the highest access (index 6). On the other hand, access to the performing arts is more widely distributed. However, there are also no areas where the access index reaches its highest score, which could be explained by the fact that no performing arts institutions in the sample offer free admission (admission prices typically

range from \$3 to \$250). Unsurprisingly, cultural districts for the performing arts are geographically aligned with the centers of population wealth.

Access to libraries is particularly well-established, and there are only three zones with access index of 1 (Appendix 2). Being the largest cultural sub-sector, locations of libraries shape the overall access map, which also means that libraries play critical roles in ensuring wider population access to culture. Therefore, our results confirm the historically important role of libraries as long-standing public cultural institutions that are well-positioned to perform important cultural and educational functions. Historical organizations are second best in terms of their accessibility to the Metropolitan Detroit population; however, sizable portions of the area are located in the medium access zones (index 3 and 4). It is also notable that cultural districts for historical organizations, similarly to the performing arts, are located in the centers of population wealth.

When reflecting on the access structure (i.e. the six components of the access index), it appears that there are three factors that matter the most in describing the differences among the sub-fields of arts and culture: a sub-sector's size, institutional admissions policy, and availability of, and access to, transportation. Understandably so, sub-sectors with greater number of organizations offer better public access to the residents of Metropolitan Detroit, and organizations offering free admissions are more accessible as well. On the other hand, the fragmented access to public transportation that exists in the urbanized counties of Metropolitan Detroit and uneven access to cars reduce the overall accessibility of cultural institutions. Therefore, there are both factors that enable and limit access to cultural resources for the population of Metropolitan Detroit.

Accessibility Analysis: The Role of Socio-Demographic Factors

In the final part of the study, we explored the accessibility of cultural resources to different socio-demographic groups by assigning an access score to each Census tract within the geographic boundaries of Metropolitan Detroit, and accumulating across those Census tracts the socio-demographic characteristics of the areas under the same access index value (Appendix 4). The accessibility analysis has resulted in six access zones for all cultural sub-fields, except for the performing arts and science organizations that only had five access zones and no zone with the highest access. On the other end of the access continuum are the libraries that have all six access zones but only three Census tracts with access of one. There are no Census tracts with access of zero in any of the sub-fields of arts and culture organizations.

In order to analyze the accessibility of cultural resources to diverse population groups, we focused on six socio-demographic factors: 1) socio-economic status and income (measured as median household income, percent of population in poverty, percent with Social Security income, percent with Food Stamps, and percent with disability), 2) employment status (measured as percent of unemployed and percent in labor force), 3) ethnicity/minority status (measured as percent minority – all Non-Whites and percent Hispanics), 4) education (measured as percent with less than Bachelor degree), 5) age (measured as percent under 18 years old and percent 65 years and over), and 6) population size.

Our assumption was that the first four socio-demographic variables describe what could be considered as traditionally underserved groups among cultural organizations' audiences. While this may not be true for all arts and culture organizations, classical forms of arts and culture, especially the ones represented by the nonprofit sector (e.g. music and performing arts, visual arts), are frequently considered to be 'elitist' (DiMaggio & Mukhtar, 2004). These organizations have in some sense been built by the elites and are still largely sustained by them.

So, the democratic—broad scale—legitimacy is lacking in such organizations. Therefore, providing wider public access and diversifying their audiences by including members of the underrepresented groups is of particular importance for the normative legitimacy of the classical arts and culture organizations. Likewise, age (category 5), as a proxy for serving multigenerational audiences, is an important variable when it comes to ensuring accessibility. The ability of cultural organizations to serve young generations of future supporters and older generations of current donors is important for both their immediate survival and intergenerational sustainability (Moldavanova, 2016). The population size variable (category 6) could be viewed as an overall indicator of the cultural sector's accessibility, since the more population is located in higher access zones, the more accessible the sector would be to the population of Metropolitan Detroit.

Based on the analysis of the aggregated access table for the entire cultural sector (Table 1 in Appendix 4), the variable 'population' is approximately normally distributed, and the majority of Metropolitan Detroit population has a reasonably good access (zones 3 and 4) to cultural amenities. Moreover, there are only two Census tracts in the lowest access zone³. Therefore, it appears that arts and culture organizations are generally well-positioned to serve substantial proportions of the Metropolitan Detroit population, which, at least in theory, would mean the enhanced prospects for the sector's legitimacy and long-term sustainability. However, despite the reasonably good access to cultural organizations per capita, there is also some evidence of an 'elite' access structure. In particular, the highest access zone (index 6) has fewer ethnic minorities, fewer people with less than Bachelor degree, and higher household income, as compared to other access zones. Concerns about access become clear when looked upon separately for the different arts and cultural sub-fields.

Consistent access deficiencies across all sub-fields of arts and culture are observed for the communities in Metropolitan Detroit that have higher percentage of minority populations, as well as higher percentage of less educated people (more people with less than Bachelor degrees). Therefore, improving access for these two groups of population appears to be most critical. Other, less consistent access deficiencies for various sub-fields of arts and culture include: areas with higher proportion of low income population (in history, science, and performing arts), lower proportion in labor force and higher unemployment (in history and performing arts), higher percent receiving food stamps and in poverty (in history), higher percent receiving Social Security (in libraries, history, performing arts, science), higher proportion of people with disabilities (in history and science).⁴ Therefore, the results of our descriptive analysis indicate that minority populations and those that have lower socio-economic and employment statuses may, in fact, be at a greater disadvantage in terms of access to several sub-fields of arts and culture organizations⁵. Subsequently, the existing access barriers would limit the ability of such sub-fields to ensure comprehensive public access and effectively serve the diverse populations, thus constraining their ability to gain access to diverse resources and achieve greater moral legitimacy.

Among other, performing arts and historical organizations appear to have the type of access structure that could be described as ‘elitist’, where access decreases for traditionally underserved populations and increases for the more advantaged ones across multiple socio-demographic measures. There is also evidence of an ‘elitist’ access structure in the other cultural sub-fields. For example, highest access (index 6) to libraries is observed in areas with the highest income and lowest percent of ethnic minorities. At the same time, highest access to visual arts is observed for tracts with the highest income and socio-economic status (lowest unemployment,

percent in poverty and receiving food stamps), lowest percent minority, lowest percent with less education, lowest with percent with disability, and highest median age. Once again, these observations point out possible presence of a certain ‘elitist’ access structure that follows education and higher social status. Education, in particular, appears to be a consistent factor for both reducing and enhancing access to most types of cultural amenities, with the exception of libraries, where levels of education are similar across all access zones, and that seem to follow more egalitarian locational patterns as compared to other cultural sub-fields. While our descriptive analysis does not test for causality, it is possible that education may, in fact, be a powerful predictor of the arts and culture organizations’ locational patterns⁶.

Our observation regarding the consistent role of education, as well as less consistent but powerful roles of socio-economic status and proportion of minority, is not unproblematic for organizational legitimacy. It implies that stakeholders with less education and lower social mobility, who could have benefitted from improved access to cultural amenities more so than more educated stakeholders with higher social mobility, are actually at a greater disadvantage in terms of their access to cultural resources. This paints more of an instrumental rather than normative view of organizational legitimacy, with clear access barriers that need to be overcome. Therefore, while for resource-based considerations it may be economically more beneficial for arts and culture institutions to focus on areas with higher levels of education and socio-economic status, it is also morally imperative that such organizations work on ensuring better access for less educated and less socially and economically advantaged populations.

DISCUSSION AND CONCLUSIONS

This article investigated public access and commitment to audience diversity as two critically important values for public service organizations. Using the sample of

335 public and nonprofit cultural organizations located in Metropolitan Detroit, we applied the GIS-modelling approach to develop an index of public access to cultural institutions. While previous approaches to mapping cultural institutions focused on physical locations of individual organizations or whole sectors, our approach introduced an innovative way of defining and analyzing access that takes into account institutional admissions policy, the physical characteristics of a location, and the availability of, and access to, transportation.

We find that while the overall access to the cultural sector appears to be widely distributed, there are substantial differences in the access depending on the sub-field of arts and culture. Use of an index of access clearly identifies particularly problematic access areas. When reflecting on the access structure, it appears that there are three factors that matter the most in describing the differences among the sub-fields of arts and culture: a sub-sector's size, institutional admissions policy, and access to transportation. Understandably so, sub-sectors with greater number of organizations offer better public access to the residents of Metropolitan Detroit, and organizations offering free admissions are more accessible as well. On the other hand, the fragmented public transportation infrastructure and limited access to cars that exists in the urbanized counties of Metropolitan Detroit reduce the accessibility of cultural institutions.

We further used the U.S. Census Bureau data to analyze how accessible cultural institutions are to the traditionally underserved populations. Our analysis revealed that arts and culture organizations are generally well-positioned to serve substantial proportions of the Metropolitan Detroit population; however, certain groups of the population are at a greater disadvantage in terms of their access to particular types of cultural amenities. In particular, consistent access deficiencies across all sub-fields of arts and culture are observed for the communities in Metropolitan Detroit that have higher percentage of minorities, as well as higher

percentage of less educated people. Therefore, improving access for these two groups of population appears to be most critical. Other, less consistent, access deficiencies indicate that populations that have lower socio-economic status and income, as well as lower employment, may, in fact, also be at a greater disadvantage in terms of access to several types of arts and culture organizations. Overall, we find some evidence of an ‘elitist’ access structure that follows higher levels of education and higher social status.

These findings imply that, while moral legitimacy is an important pursuit for cultural organizations that aspire to achieve long-term sustainability, organizations might be underutilizing an important community resource – diverse audiences – that would allow implementing their legitimacy goals in practice. Alongside the issues with the normative dimension of legitimacy, we also find some evidence of more instrumental, elite-type considerations that may be influencing arts and culture sector’s access structure. Therefore, from a normative point of view, it would be important to overcome the existing access barriers in order to enhance the ability of arts and culture organizations to act as socially responsible and, ultimately, sustainable organizations.

These findings imply a window of opportunity for cultural organizations, donors, and policy-makers. Some possible ways of improving public access to cultural organizations in the urbanized counties of Metropolitan Detroit may include such institutional policies as offering free admissions and/or subsidized access, especially for people with lower socio-economic status, as well as increasing public outreach in geographic areas with high concentration of minority populations and populations with lower levels of education. Particularly useful could be the early outreach programs in public schools, in order to provide access and cultivate cultural appreciation skills among young people early on in their lives.

Additionally, a possible policy intervention that will help to reduce the existing access barriers would be improving transportation options for low and medium access Census tracts to ease access to cultural institutions, which may include both better public transportation networks as well as donor-supported transportation to assist cultural institutions with their public outreach efforts. Additionally, considering the low number and lower accessibility of science organizations in Metropolitan Detroit, it would be beneficial to support the creation of new science institutions in the area.

By offering an innovative way of defining and describing the accessibility of culture as a community resource to the public, this article contributes to the previous scholarship in multiple ways. First, the methodology introduced in this article contributes to the literature on community resource accessibility by introducing a comprehensive, multi-component, index of access that could be utilized in future studies of arts and culture accessibility beyond Metropolitan Detroit, as well as studies of accessibility of other types of community resources⁷. Second, by investigating the potential of arts and culture organizations to pursue two critical pillars of organizational legitimacy – public access and audience diversity – this article sheds more light on the application of the legitimacy theory. Access index analysis also indicates that cultural organizations partially follow locational patterns along the lines of population size, wealth concentration, county seat presence, thus supporting basic assumptions of the resource dependency theory about organizations choosing locations with access to greater resources.

While offering these important methodological and theoretical contributions, the study is not without limitations, some of which could offer potent directions for future research. First, our study did not include commercial arts and culture organizations; however, there is often a symbiotic connection that exists between arts businesses and nonprofits (Toepler &

Wyszomirski, 2012), particularly the ones located within the same geographical boundaries. Therefore, future studies would benefit from exploring access structure that considers both commercial and noncommercial cultural organizations. Second, our comprehensive index of access includes six components that are relevant for the context of our study; however, there may be some variables currently not included in the study, such as, for example, economic factors (admission price structure, behavioral incentives, quality of cultural supply and demand, etc.), that may be important for understanding public access to cultural organizations. Additionally, this study does not account for alternative programming, such as online and mobile exhibitions and performances, which may improve access to cultural amenities. Future studies should attempt to explore the role of such variables and, possibly, include those as part of the access index.

Third, the analysis presented in this article is descriptive in nature, and it suggests rather than tests the role of factors that either enhance or depress access to the cultural sector. Future studies would benefit from predictive analyses that explore the relative weight and possible causes of access barriers, as well relationships that may exist between socio-demographic variables (as independent variables) and the access index (as the dependent variable). Fourth, there is some indication that certain institutions provide less access, which may be because of their attachment to elites via resource dependency that frees them from the necessity to reach underserved populations. Therefore, it would be beneficial to explore possible resource dependency patterns by assessing the extent of their revenue that comes from elite sources. Additionally, our analysis is based on the specific context of urbanized counties in Metropolitan Detroit; therefore, our observations may have limited potential for a wider generalizability.

Future studies should include wider geographical contexts, in order to identify which access barriers are sector-specific and which ones are geographically-determined.

Finally, future studies would benefit from researching the effectiveness of various methods used by organizations for reaching out to underserved populations, as well as the structure of individual preferences for particular genres and types of cultural expression, which may help to identify access barriers that uniquely affect such populations. Gaining such knowledge may allow cultural organizations to tailor their programming to the specific needs of underserved populations, thus improving prospects for their own organizational sustainability.

1. Foundations, in particular, served as ~~Endnotes~~ stakeholders that were able to raise funds necessary for safeguarding the DIA's collections. However, during the Great Recession, DIA's operations were also supported by the tax mileage levied in a tri-county area (Wayne, Macomb, Oakland), which was passed via popular vote by the majority residents in these counties. Such multilayered support shows that the DIA has gained legitimacy among both elite and non-elite stakeholders.
2. At the root of this observation is the fact that the car ownership rate (one of our access index components) within the boundaries of the City of Detroit is relatively low.
3. Socio-demographic profile for zone 1 in the access table for the entire cultural sector should be interpreted with caution. Zone 1 contains only two Census tracts, and one of those tracts is the federal corrections facility that houses higher proportion of disadvantaged population.
4. Libraries, however, are a special case, as one of the three Census tracts with the lowest access level (index 1) is the federal corrections facility that houses higher proportion of minority population and people with disabilities.
5. It should be noted that access zone 5 is an outlier. The access structure in zone 5, in fact, resembles that of zone 1, where access deficiencies are observed for the traditionally underserved populations. This 'outlying' position of zone 5 is explained by the fact that it captures significant proportion of Census tracts located within the City of Detroit, all of which have a relatively high number of cultural institutions in close proximity, but also populations with low access to cars. One exception from this pattern is music and performing arts organizations, where zone 5 follows access patterns similar to those of zone 6. The latter is a result of the paid admission that influences access index values for the performing arts.
6. It is possible that arts and culture organizations would be more likely to choose more educated communities as their locations due to the higher levels of arts and culture

appreciation observed, and higher levels of support available, in such communities. However, considering the positive relationship that exists between human capital (expressed via levels of education) and other forms of capital (economic, social, etc.) (Bourdieu, 1986); it is also possible that more educated people would have more resources to enable their own higher access to cultural amenities.

7. While several previous studies have explored the accessibility of various community resources to different socio-demographic groups of population (Adams et al., 2010; Sparks et al., 2011), including the accessibility of cultural resources (Redaelli, 2012), none of those studies employed such a comprehensive approach to defining access as the multi-component index that we used in this article.

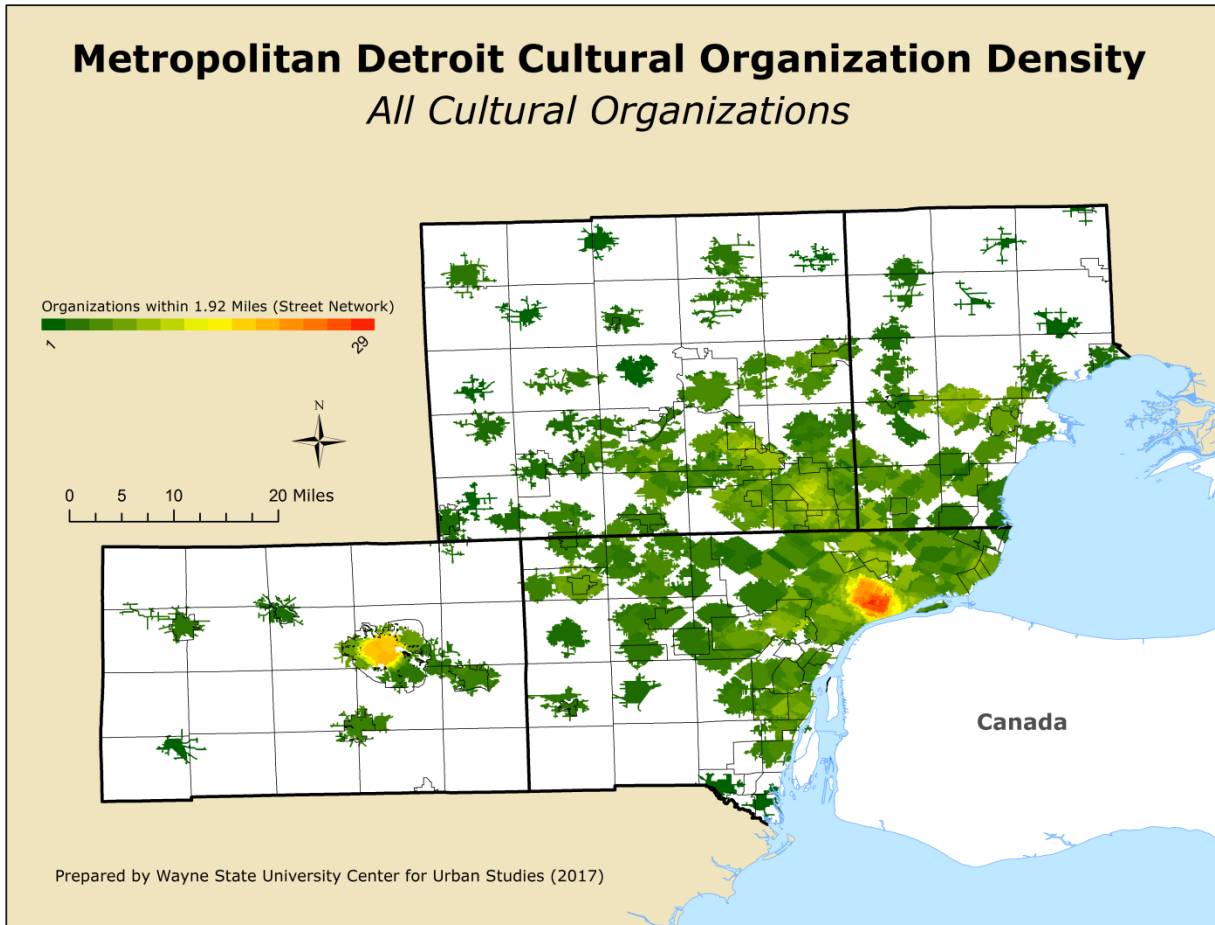
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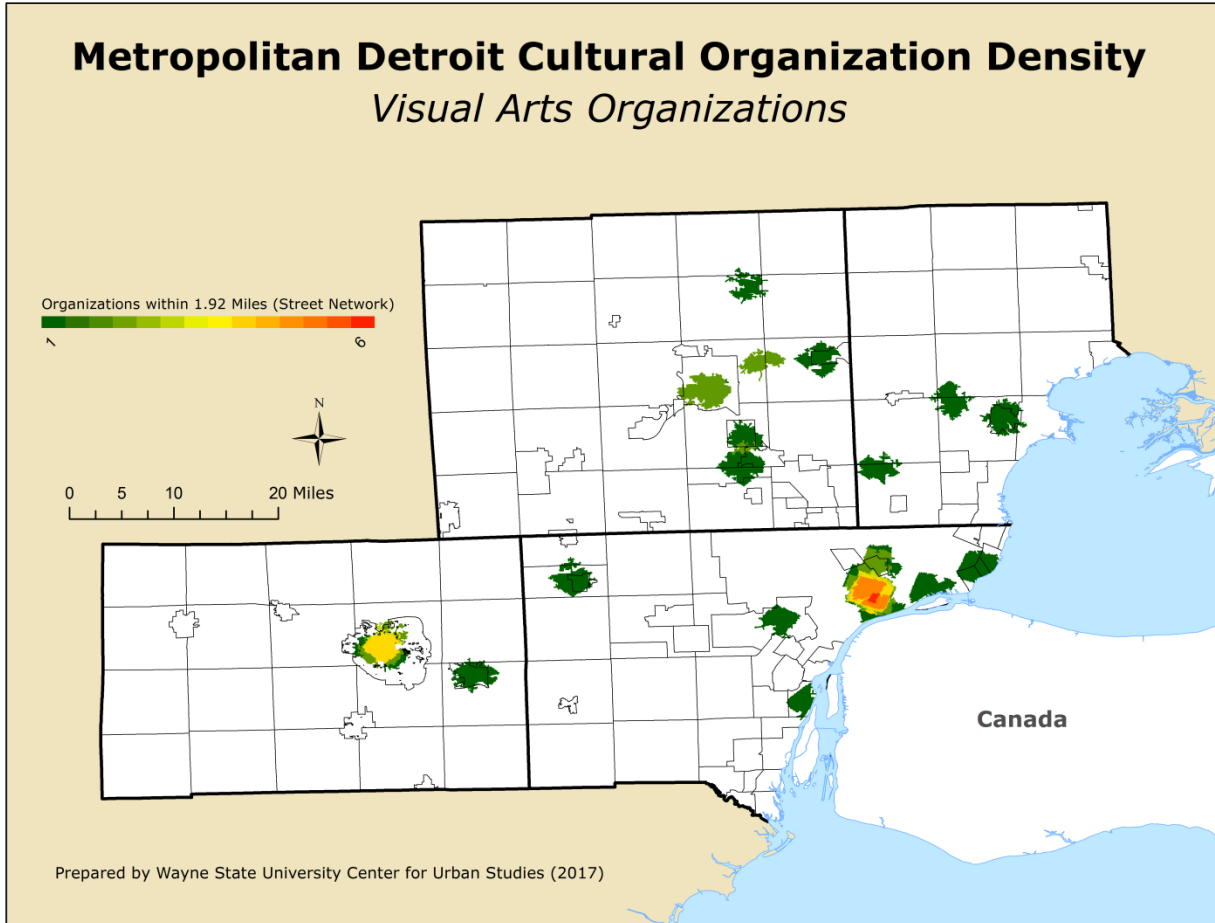
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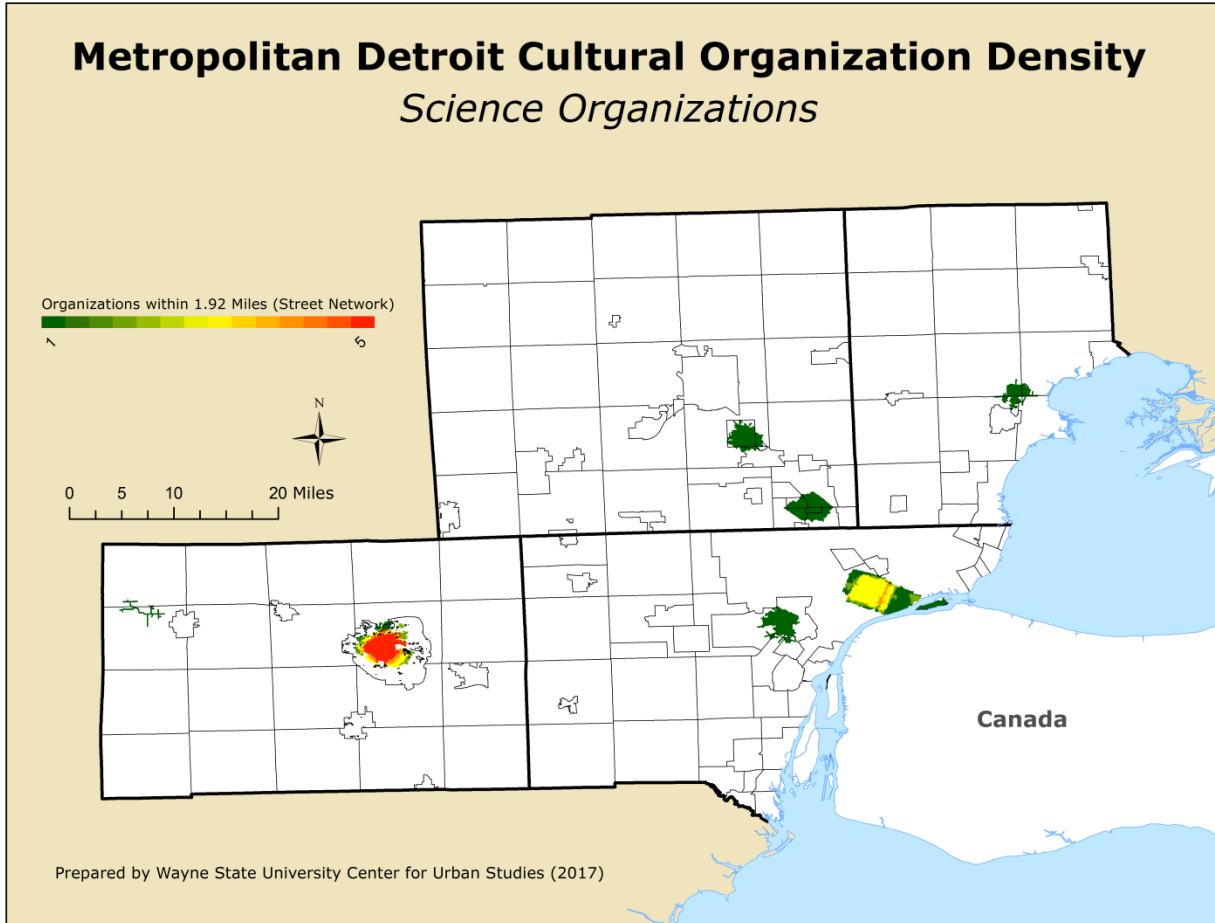
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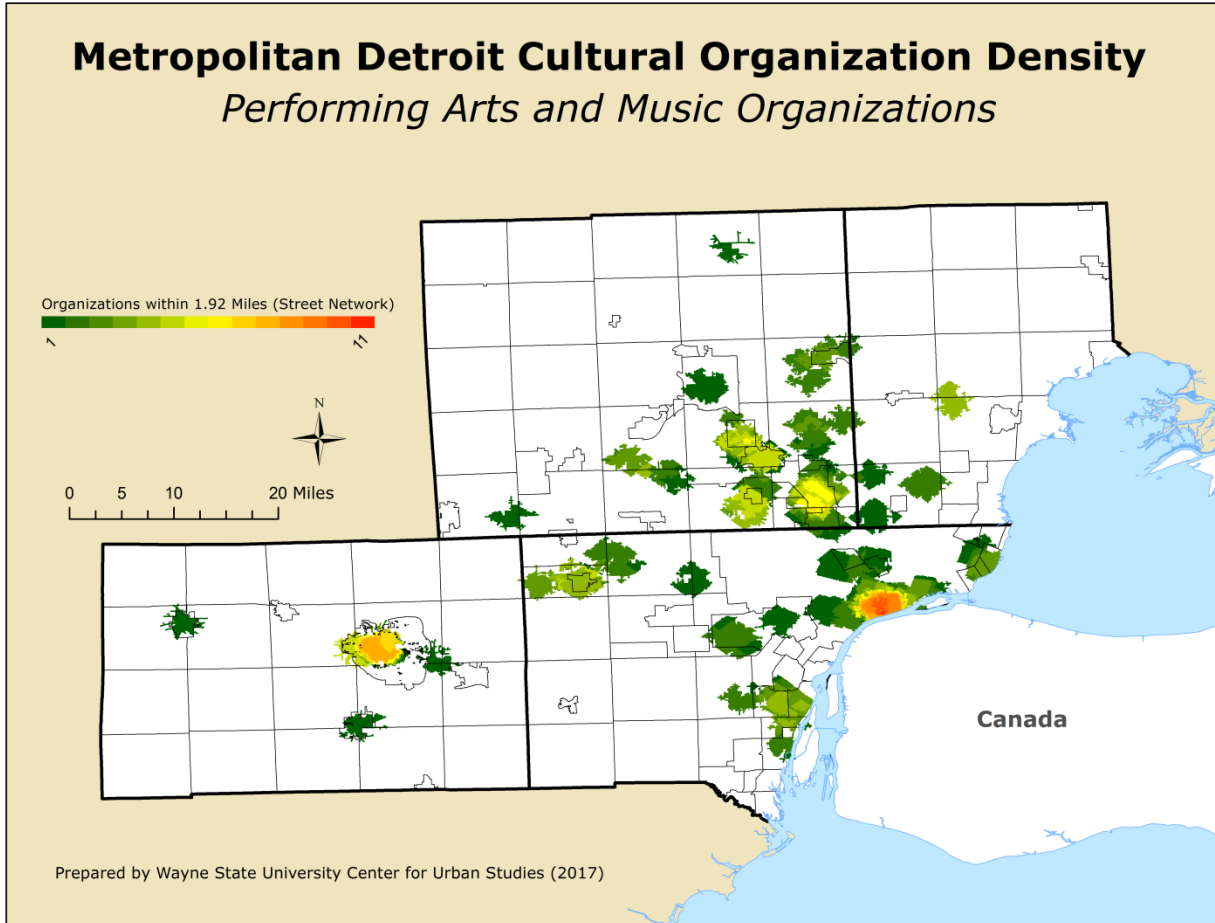
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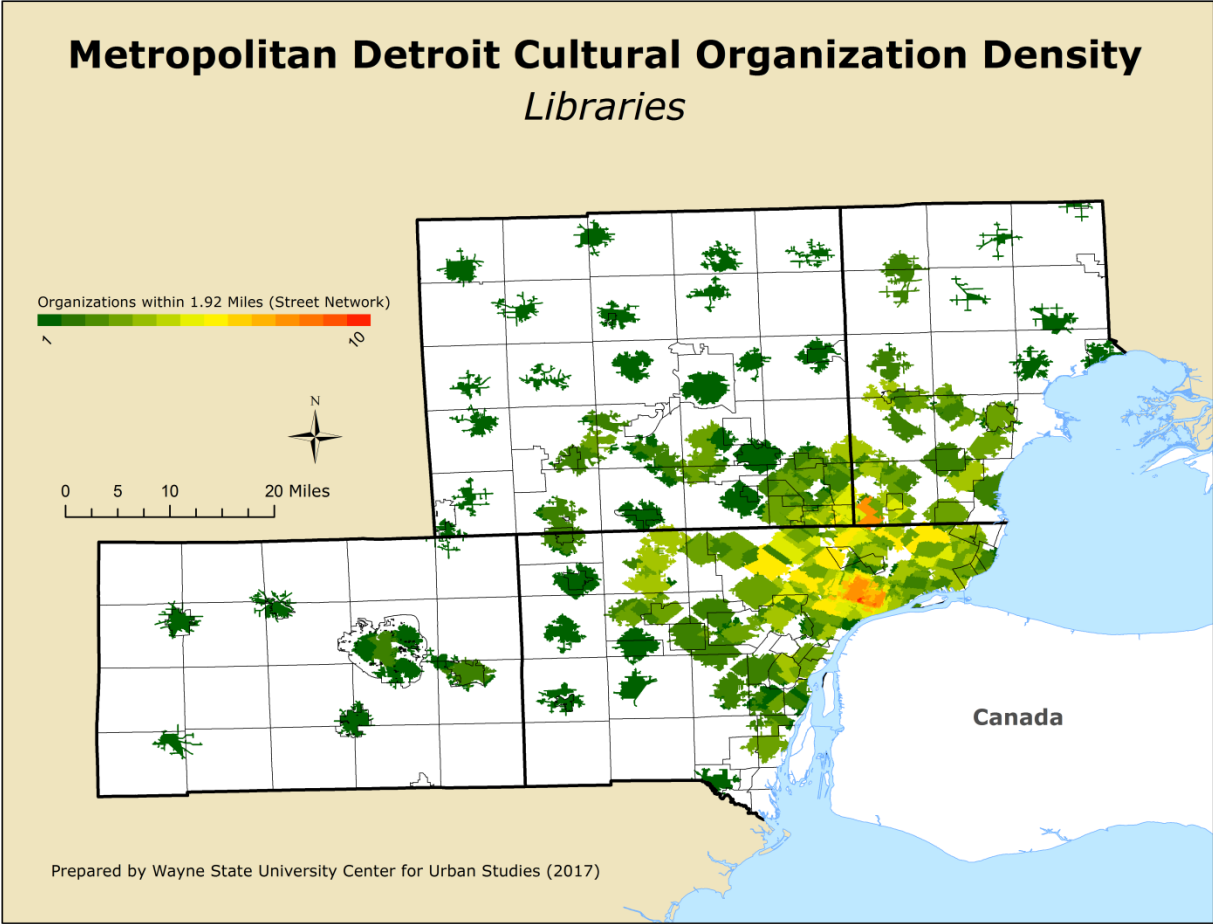
Appendix 1. Metropolitan Detroit Density Maps for All Cultural Organizations and the Five Sub-Sectors

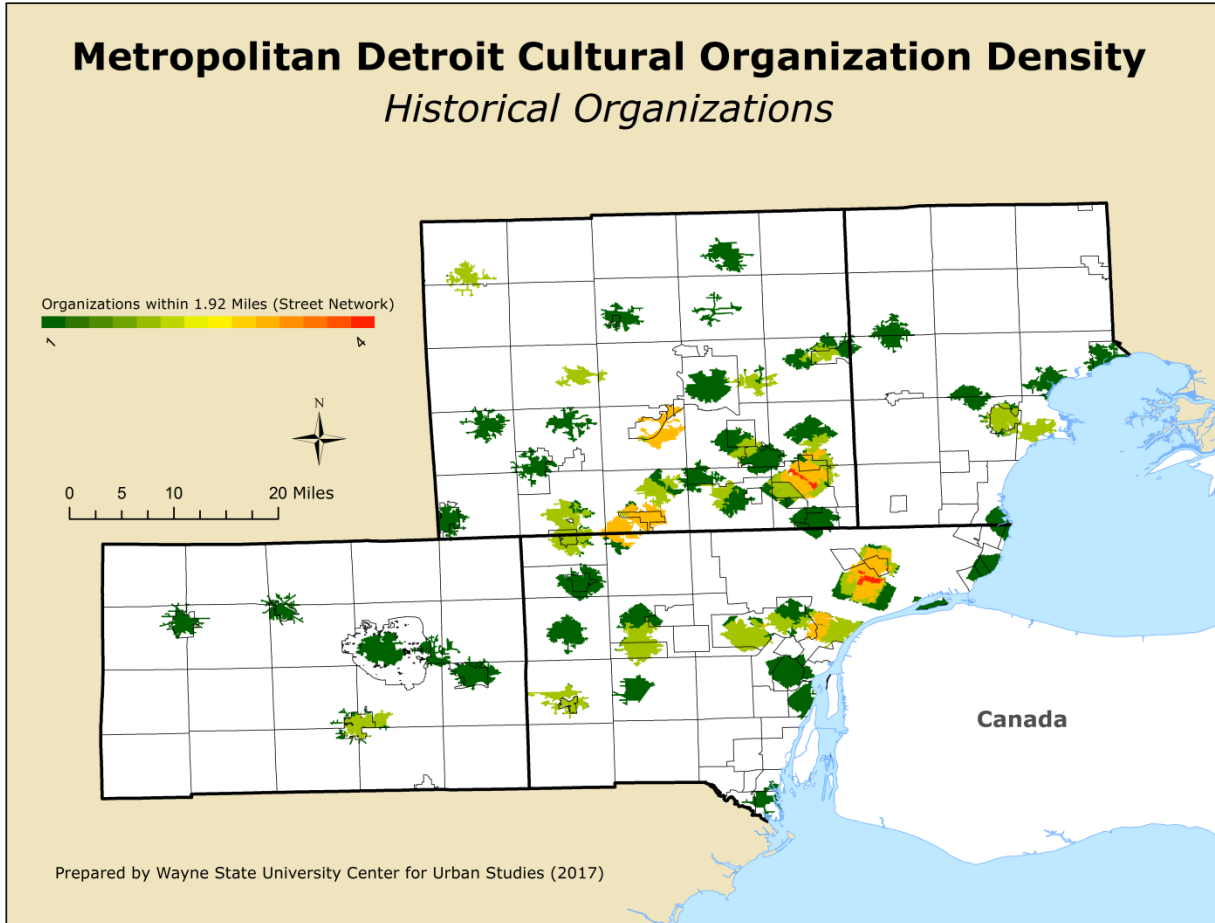




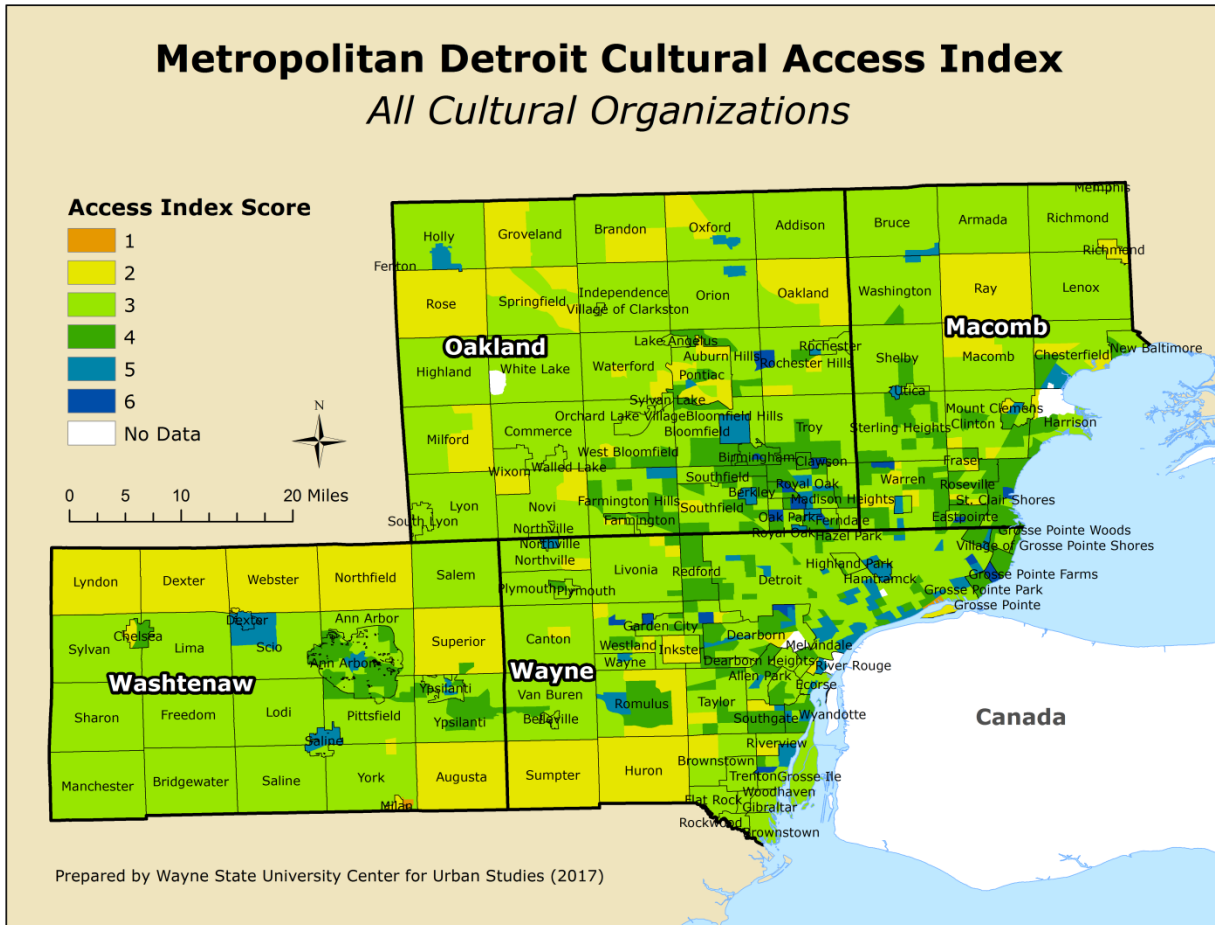


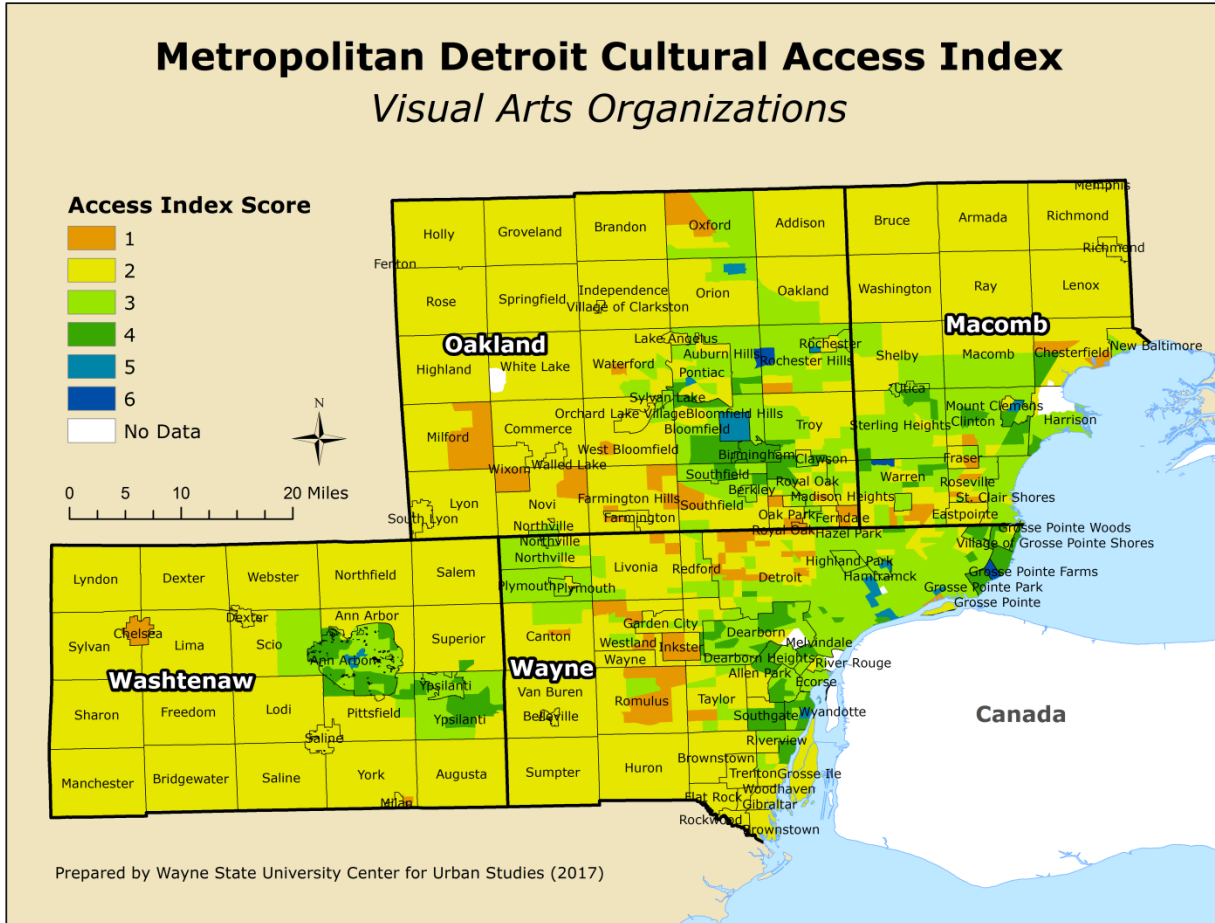






Appendix 2. Metropolitan Detroit Access Index Maps for All Cultural Organizations and the Five Sub-Sectors





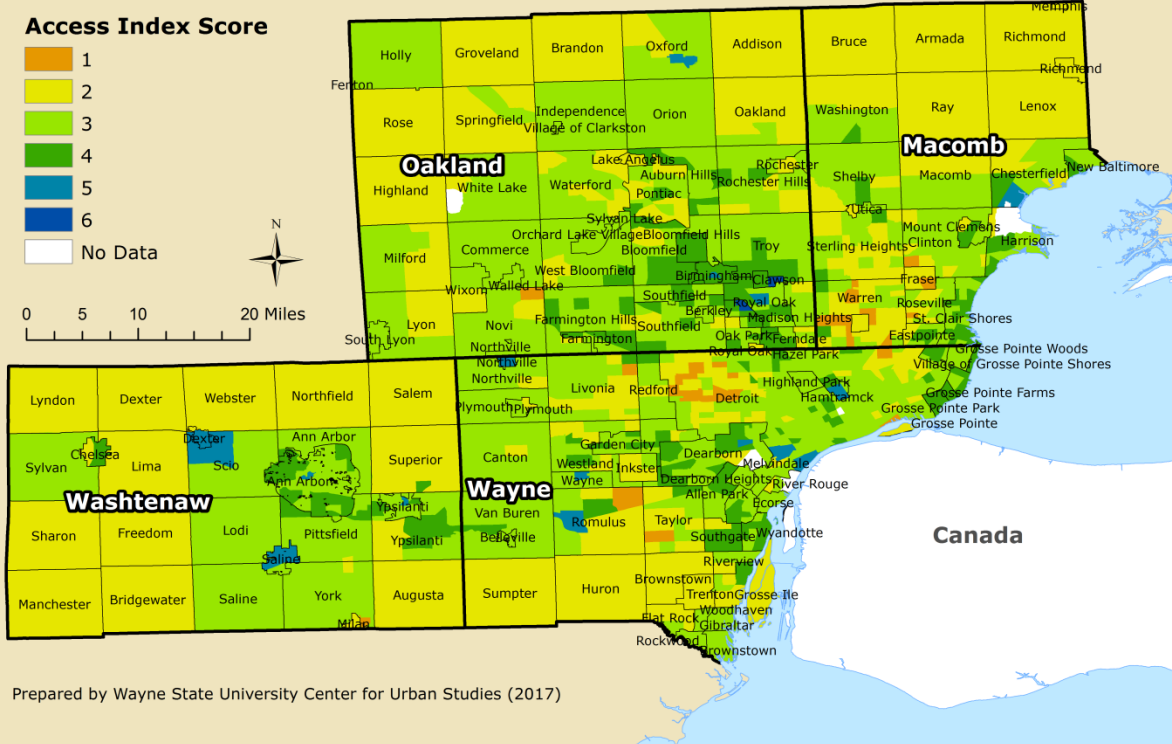
Metropolitan Detroit Cultural Access Index

Historical Organizations

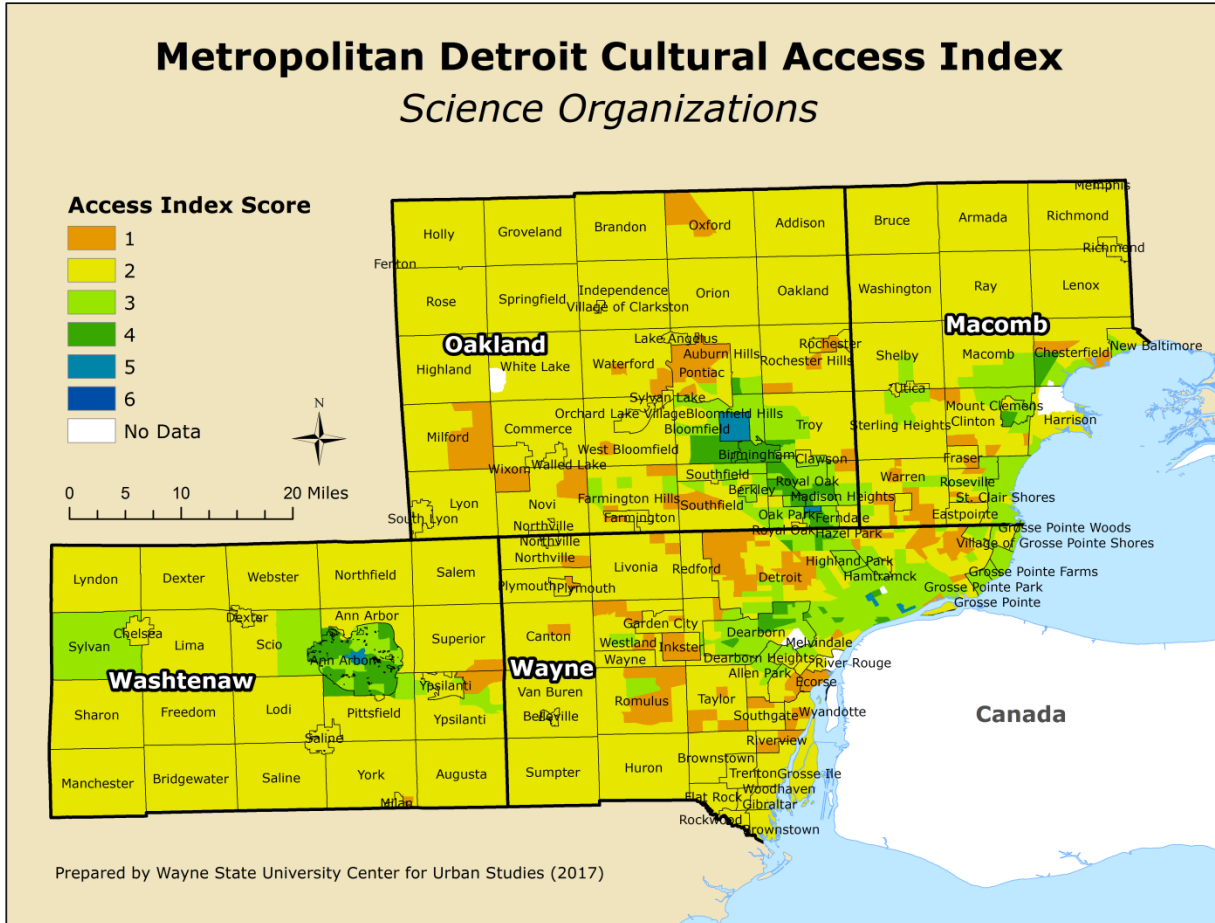
Access Index Score

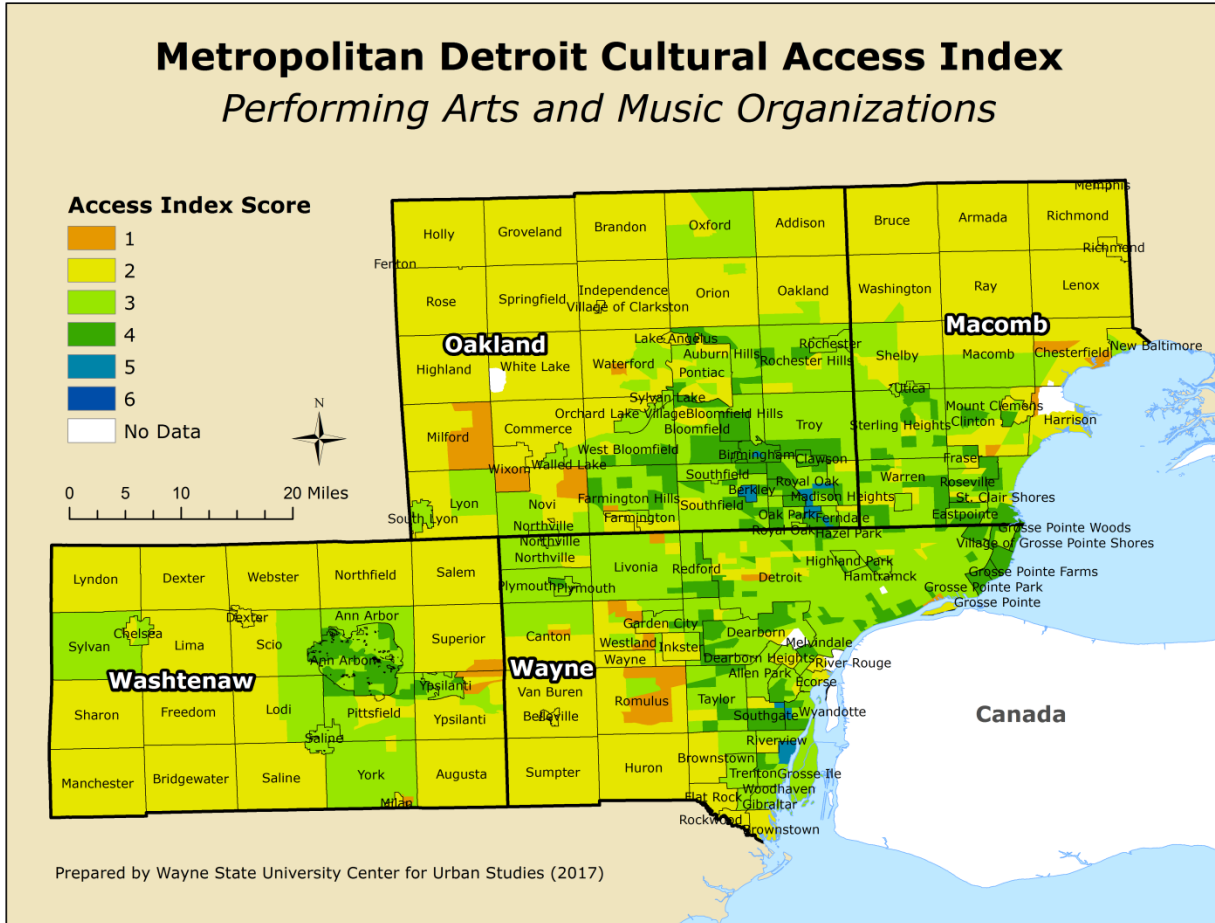


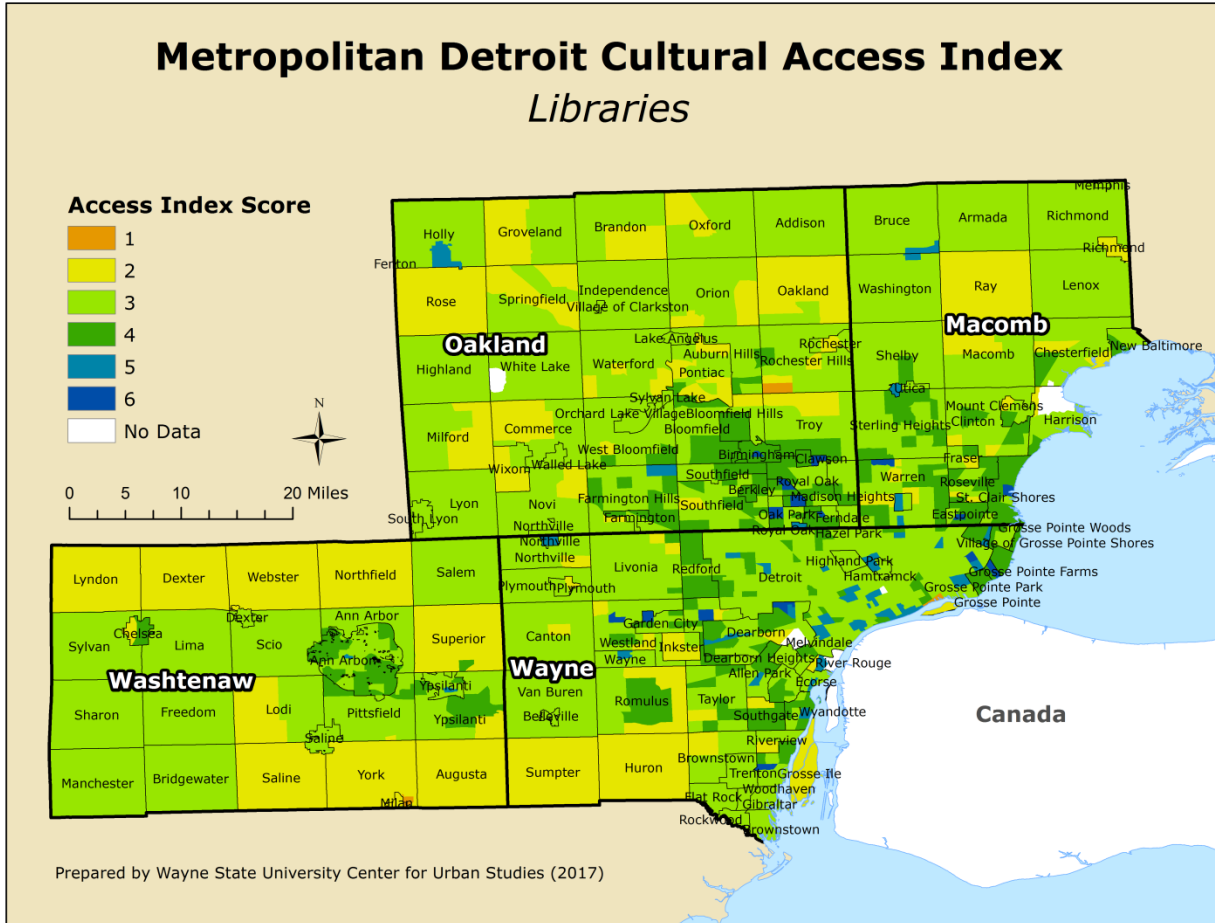
0 5 10 20 Miles



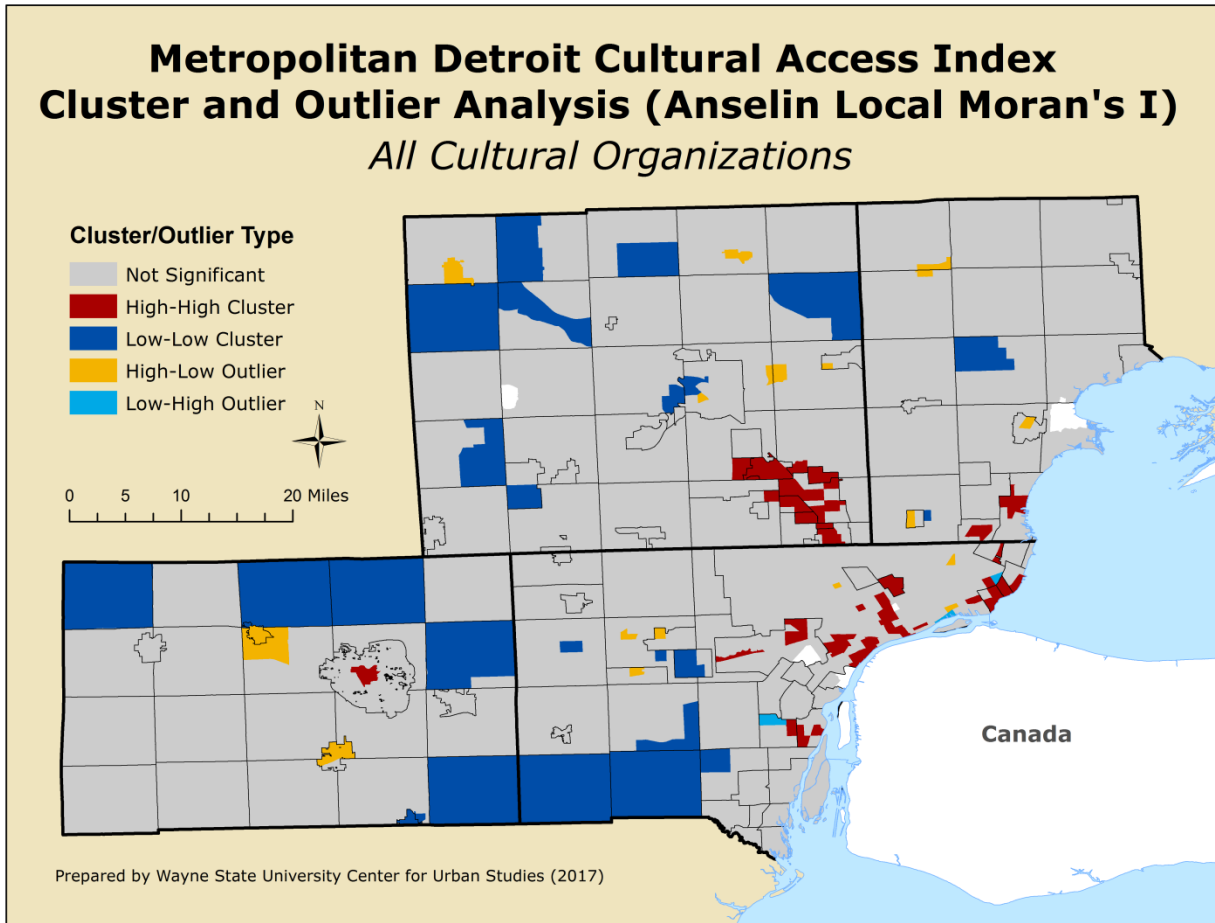
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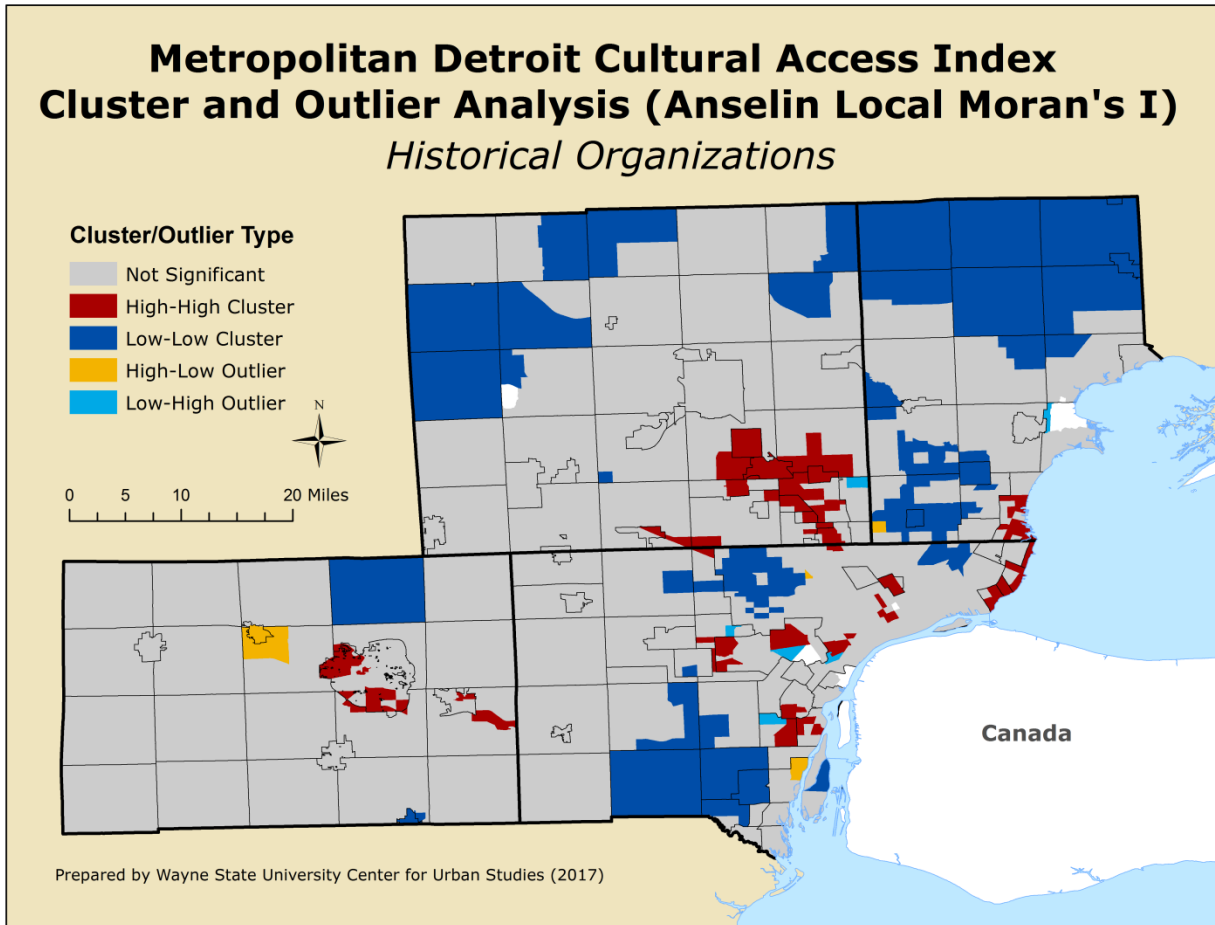


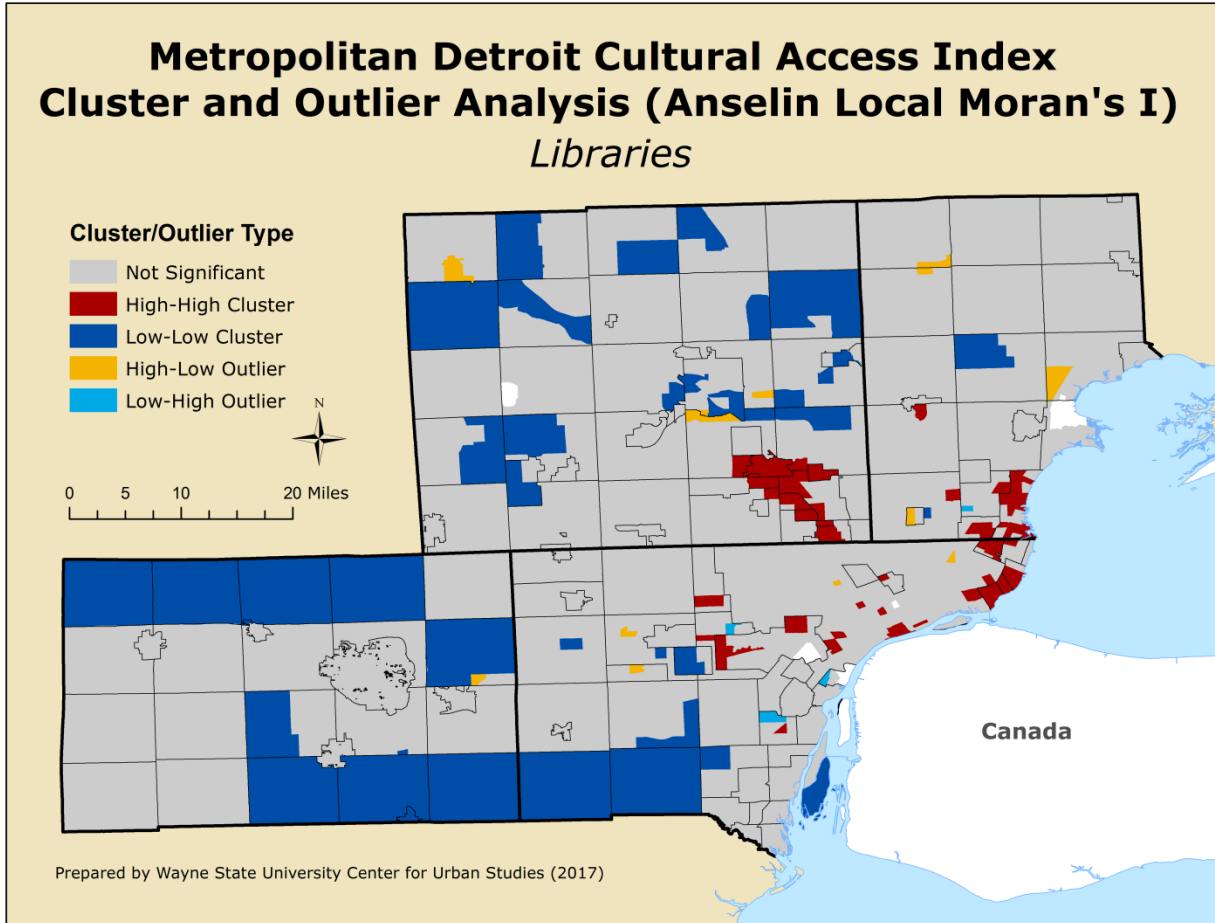


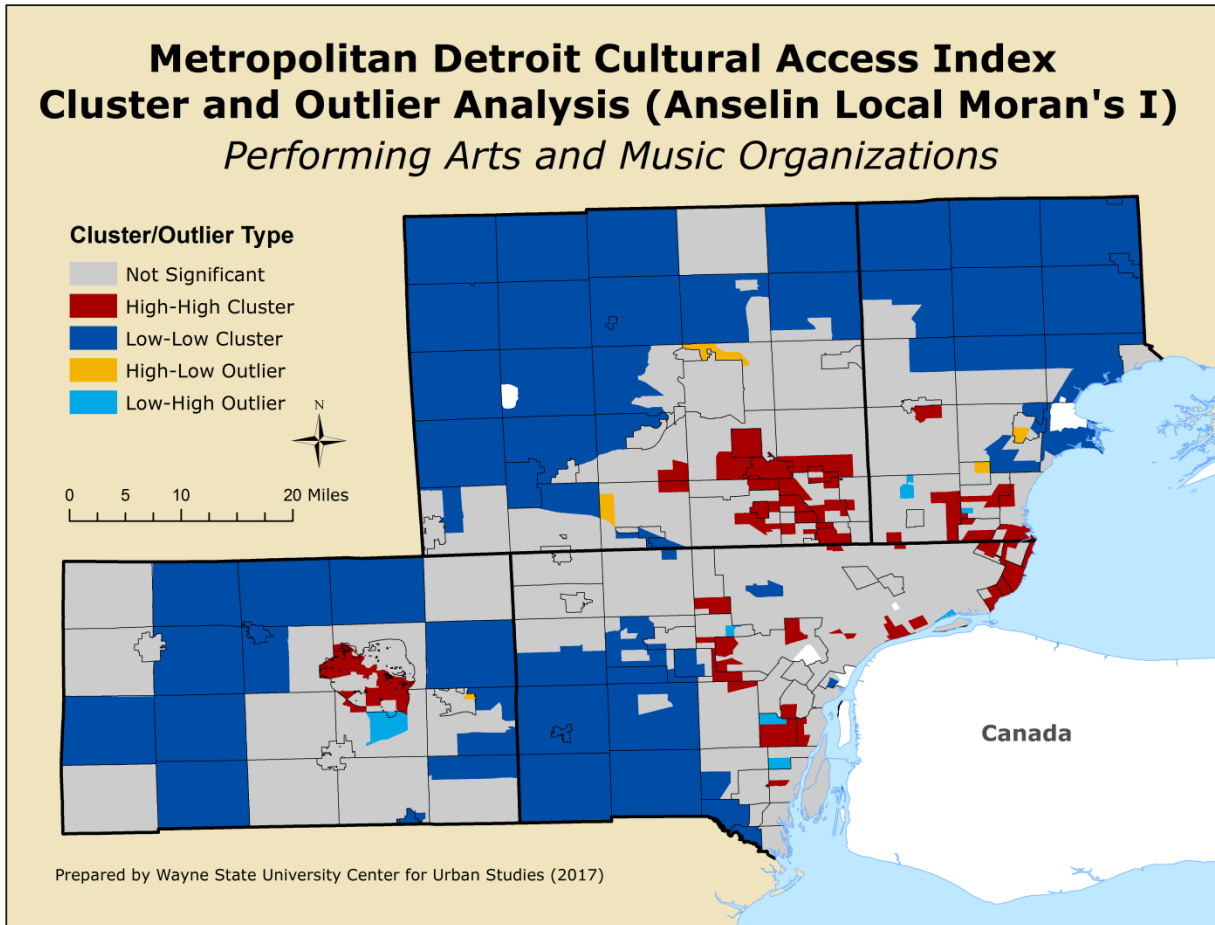


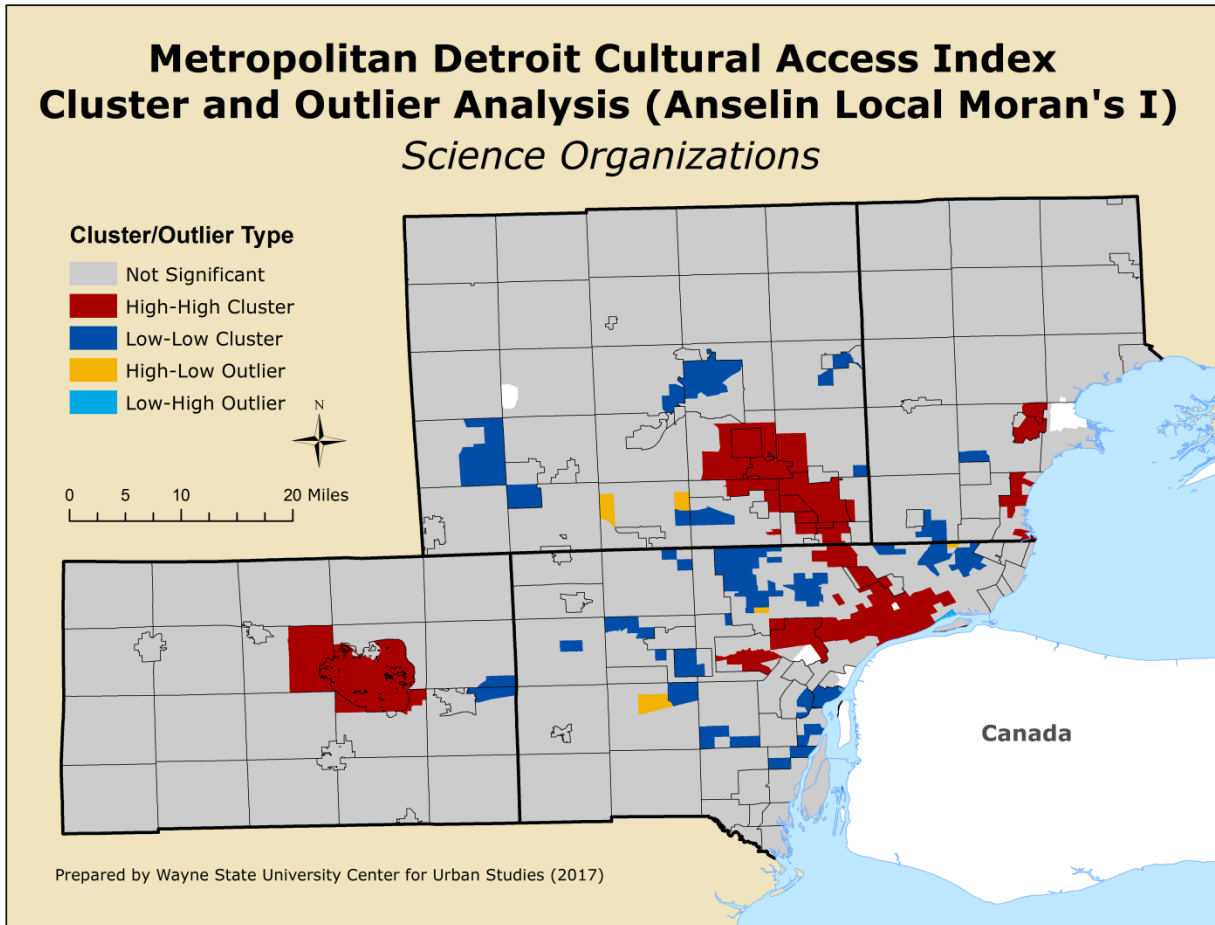
Appendix 3. Maps of Cultural Clusters and Outliers Based on Anselin Local Moran's I Measures (All Cultural Organizations and the Five Sub-Sectors).

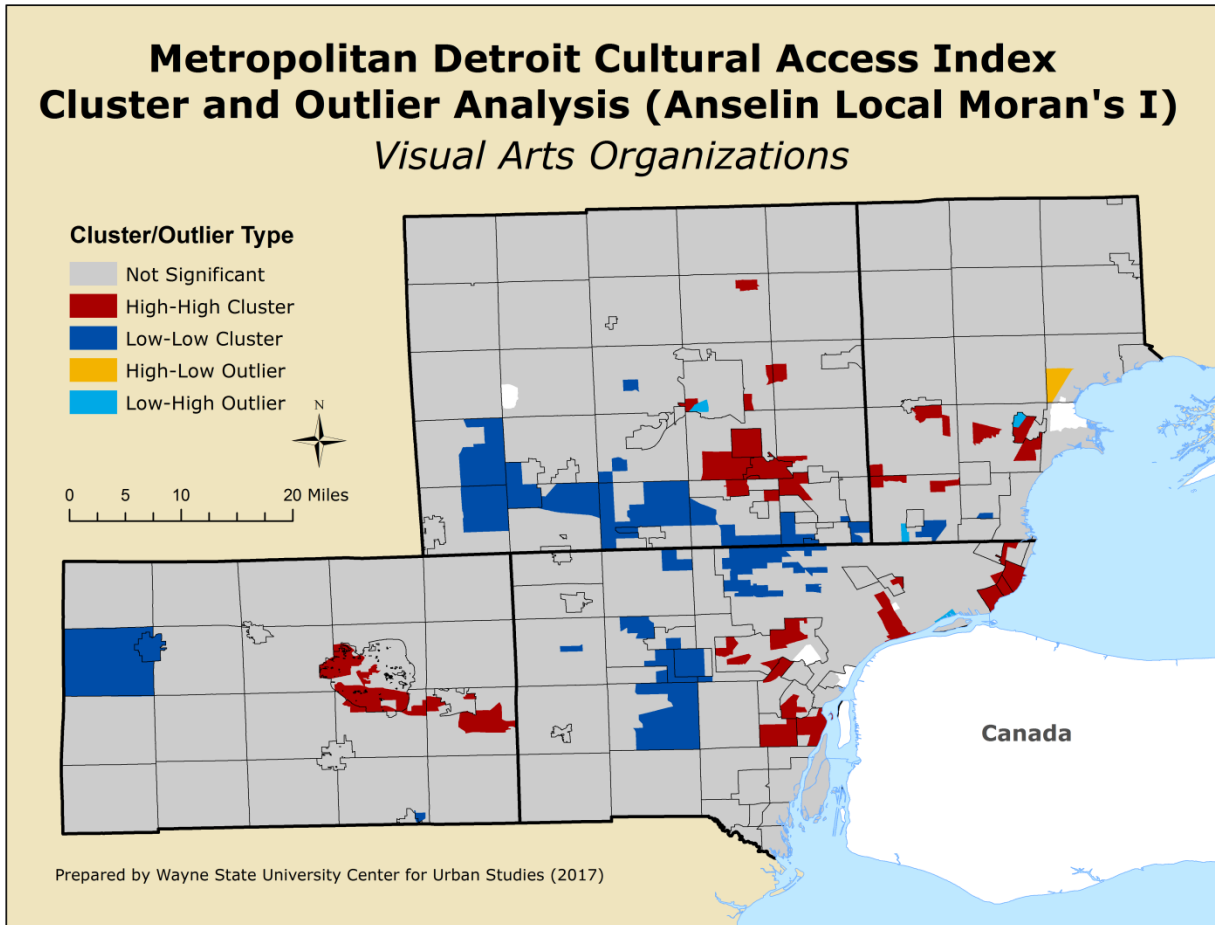












Appendix 4. Tables with Access Index and Socio-Demographic Variables (All Cultural Organizations and the Five Sub-Sectors)

| Variable | Access Index Score - All Cultural Organizations | | | | | | Total |
|--|---|---------|-----------|---------|---------|--------|-----------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | (Four Counties) |
| Number of tracts | 2 | 87 | 785 | 279 | 85 | 20 | 1,258 |
| Population | 4,896 | 333,163 | 2,662,403 | 897,616 | 256,491 | 62,684 | 4,217,253 |
| % in Labor Force ^a | 36.0% | 61.7% | 62.5% | 64.7% | 57.4% | 62.4% | 62.6% |
| Unemployment Rate ^a | 6.8% | 10.5% | 11.0% | 9.2% | 13.4% | 9.5% | 10.7% |
| Employment/Population Ratio ^a | 33.6% | 55.2% | 55.6% | 58.7% | 49.7% | 56.5% | 55.9% |
| % in Poverty | 19.7% | 15.3% | 17.4% | 14.3% | 31.2% | 15.0% | 17.3% |
| Mean Household Income | 40,504 | 70,843 | 74,193 | 74,538 | 57,461 | 81,067 | 73,045 |
| Median of Median Household Income | 14,739 | 49,063 | 48,438 | 53,894 | 27,349 | 49,152 | 49,201 |
| % of Households with SNAP/Food Stamps | 27.5% | 16.6% | 18.0% | 14.3% | 25.5% | 13.2% | 17.5% |
| % of Households with Social Security | 44.9% | 33.8% | 31.5% | 30.5% | 27.9% | 31.8% | 31.3% |
| Median of Median Age | 50 | 42 | 40 | 40 | 37 | 42 | 40 |
| % under 18 | 4.4% | 23.0% | 23.3% | 22.3% | 21.5% | 23.5% | 23.0% |
| % 65 and over | 24.1% | 15.0% | 14.0% | 14.3% | 11.4% | 14.2% | 14.0% |
| % Minority | 82.2% | 28.4% | 36.9% | 30.6% | 43.1% | 23.7% | 35.1% |
| % Hispanic | 5.5% | 3.8% | 4.0% | 3.7% | 9.8% | 2.6% | 4.3% |
| % Less than Bachelor's Degree ^b | 73.4% | 75.0% | 71.1% | 68.8% | 75.2% | 69.4% | 71.2% |
| % With Disability | 37.1% | 15.1% | 13.5% | 13.3% | 14.4% | 13.6% | 13.6% |

Note.^a Persons 16 years or older; ^b Persons 18 years or older

Source: U.S. Census Bureau, 2011-2015 American Community Survey

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| Variable | Access Index Score - Historical Organizations | | | | | | Total (Four Counties) |
|---|---|----------|-----------|---------|--------|--------|-----------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| Number of tracts | 34 | 289 | 711 | 202 | 20 | 2 | 1,258 |
| Population | 90,767 | 992,149 | 2,397,449 | 657,215 | 73,630 | 6,043 | 4,217,253 |
| % in Labor Force ^a | 54.2% | 61.4% | 62.8% | 65.0% | 60.0% | 74.9% | 62.6% |
| Unemployment Rate ^a | 18.2% | 12.3% | 10.3% | 8.7% | 10.2% | 3.6% | 10.7% |
| Employment/Population Ratio ^a | 44.4% | 53.8% | 56.2% | 59.3% | 53.8% | 72.0% | 55.9% |
| % in Poverty | 27.5% | 18.2% | 17.1% | 14.4% | 28.9% | 2.8% | 17.3% |
| Mean Household Income | 47,018 | 65,223 | 75,724 | 79,267 | 64,982 | 89,756 | 73,045 |
| Median of Median Household Income | 31,953 | \$45,729 | 50,063 | 56,217 | 31,250 | 76,053 | 49,201 |
| % of Households with SNAP/Food Stamps | 31.1% | 20.0% | 17.0% | 13.3% | 21.7% | 4.4% | 17.5% |
| % of Households with Social Security | 37.5% | 33.3% | 30.9% | 29.2% | 26.5% | 26.9% | 31.3% |
| Median of Median Age | 36 | 40 | 40 | 40 | 36 | 42 | 40 |
| % under 18 | 23.1% | 23.1% | 23.1% | 22.3% | 24.3% | 21.4% | 23.0% |
| % 65 and over | 15.5% | 14.4% | 13.9% | 13.6% | 11.5% | 12.3% | 14.0% |
| % Minority | 64.4% | 37.0% | 35.1% | 28.7% | 30.8% | 5.2% | 35.1% |
| % Hispanic | 2.1% | 3.1% | 4.5% | 4.2% | 16.0% | 2.4% | 4.3% |
| % Less than Bachelor's Degree ^b | 85.9% | 77.8% | 69.7% | 64.5% | 71.9% | 58.4% | 71.2% |
| % With Disability | 19.2% | 15.4% | 13.1% | 12.5% | 13.0% | 10.9% | 13.6% |

Note.^a Persons 16 years or older; ^b Persons 18 years or older

Source: U.S. Census Bureau, 2011-2015 American Community Survey

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| Variable | Access Index Score - Libraries | | | | | | Total |
|--|--------------------------------|---------|-----------|---------|---------|--------|-----------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | (Four Counties) |
| Number of tracts | 3 | 108 | 807 | 273 | 49 | 18 | 1,258 |
| Population | 8,195 | 419,131 | 2,723,566 | 873,094 | 134,243 | 59,024 | 4,217,253 |
| % in Labor Force ^a | 44.9% | 62.5% | 62.3% | 64.9% | 55.3% | 62.7% | 62.6% |
| Unemployment Rate ^a | 6.0% | 9.6% | 11.1% | 9.0% | 17.5% | 9.4% | 10.7% |
| Employment/Population Ratio ^a | 42.2% | 56.5% | 55.3% | 59.0% | 45.6% | 56.7% | 55.9% |
| % in Poverty | 13.0% | 13.3% | 18.3% | 13.8% | 34.1% | 15.1% | 17.3% |
| Mean Household Income | 65,098 | 78,519 | 72,352 | 76,250 | 46,415 | 80,218 | 73,045 |
| Median of Median Household Income | 29,478 | 53,682 | 47,372 | 54,348 | 25,938 | 49,152 | 49,201 |
| % of Households with SNAP/Food Stamps | 18.6% | 14.5% | 18.5% | 13.6% | 33.4% | 13.6% | 17.5% |
| % of Households with Social Security | 41.0% | 33.3% | 31.2% | 30.3% | 31.5% | 31.8% | 31.3% |
| Median of Median Age | 45 | 42 | 40 | 40 | 36 | 42 | 40 |
| % under 18 | 10.5% | 23.1% | 23.1% | 22.3% | 24.0% | 24.3% | 23.0% |
| % 65 and over | 22.3% | 15.0% | 13.8% | 14.2% | 12.5% | 14.5% | 14.0% |
| % Minority | 57.6% | 25.8% | 37.3% | 29.6% | 57.9% | 23.7% | 35.1% |
| % Hispanic | 5.1% | 3.7% | 4.1% | 3.7% | 13.7% | 2.6% | 4.3% |
| % Less than Bachelor's Degree ^b | 66.8% | 70.8% | 71.7% | 68.2% | 81.0% | 69.2% | 71.2% |
| % With Disability | 25.1% | 13.9% | 13.6% | 13.2% | 17.1% | 13.9% | 13.6% |

Note.^a Persons 16 years or older; ^b Persons 18 years or older

Source: U.S. Census Bureau, 2011-2015 American Community Survey

Prepared by Wayne State University Center for Urban Studies (2017)

| Variable | Access Index Score - Performing Arts and Music Organizations | | | | | | Total |
|--|--|-----------|-----------|---------|--------|---|-----------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | (Four Counties) |
| Number of tracts | 27 | 287 | 701 | 232 | 11 | 0 | 1,258 |
| Population | 93,656 | 1,106,543 | 2,250,285 | 736,786 | 29,983 | - | 4,217,253 |
| % in Labor Force ^a | 62.5% | 64.9% | 61.0% | 63.7% | 72.7% | - | 62.6% |
| Unemployment Rate ^a | 11.0% | 8.9% | 12.1% | 9.3% | 5.9% | - | 10.7% |
| Employment/Population Ratio ^a | 55.6% | 59.1% | 53.6% | 57.7% | 68.4% | - | 55.9% |
| % in Poverty | 19.7% | 12.3% | 20.4% | 15.5% | 7.0% | - | 17.3% |
| Mean Household Income | 56,384 | 79,006 | 69,048 | 77,817 | 92,762 | - | 73,045 |
| Median of Median Household Income | 37,379 | 61,033 | 42,719 | 52,969 | 66,050 | - | 49,201 |
| % of Households with SNAP/Food Stamps | 21.1% | 13.6% | 20.4% | 14.1% | 7.1% | - | 17.5% |
| % of Households with Social Security | 32.3% | 30.5% | 32.1% | 30.0% | 25.1% | - | 31.3% |
| Median of Median Age | 38 | 40 | 40 | 40 | 44 | - | 40 |
| % under 18 | 21.3% | 23.7% | 22.9% | 22.4% | 17.0% | - | 23.0% |
| % 65 and over | 14.6% | 13.3% | 14.3% | 14.0% | 12.5% | - | 14.0% |
| % Minority | 41.0% | 24.4% | 41.5% | 31.5% | 17.2% | - | 35.1% |
| % Hispanic | 4.5% | 3.4% | 4.6% | 4.6% | 2.7% | - | 4.3% |
| % Less than Bachelor's Degree ^b | 76.9% | 71.9% | 72.5% | 66.3% | 52.5% | - | 71.2% |
| % With Disability | 16.9% | 12.5% | 14.4% | 12.8% | 11.7% | - | 13.6% |

Note.^a Persons 16 years or older; ^b Persons 18 years or older

Source: U.S. Census Bureau, 2011-2015 American Community Survey

Prepared by Wayne State University Center for Urban Studies (2017)

| Variable | Access Index Score - Science Organizations | | | | | | Total (Four Counties) |
|---|--|-----------|---------|---------|--------|---|-----------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| Number of tracts | 170 | 708 | 306 | 64 | 10 | 0 | 1,258 |
| Population | 523,841 | 2,549,816 | 897,123 | 213,414 | 33,059 | - | 4,217,253 |
| % in Labor Force ^a | 58.6% | 64.0% | 60.4% | 67.6% | 47.8% | - | 62.6% |
| Unemployment Rate ^a | 17.3% | 9.2% | 12.2% | 7.0% | 10.7% | - | 10.7% |
| Employment/Population Ratio ^a | 48.4% | 58.0% | 53.0% | 62.8% | 42.6% | - | 55.9% |
| % in Poverty | 27.9% | 13.2% | 23.2% | 14.2% | 39.8% | - | 17.3% |
| Mean Household Income | 48,863 | 78,844 | 65,592 | 97,061 | 74,342 | - | 73,045 |
| Median of Median Household Income | 31,010 | 57,211 | 40,375 | 67,551 | 24,003 | - | 49,201 |
| % of Households with SNAP/Food Stamps | 29.8% | 13.9% | 21.7% | 10.3% | 16.3% | - | 17.5% |
| % of Households with Social Security | 34.2% | 31.5% | 30.5% | 25.9% | 21.3% | - | 31.3% |
| Median of Median Age | 37 | 41 | 39 | 37 | 26 | - | 40 |
| % under 18 | 23.2% | 23.1% | 23.0% | 22.8% | 9.0% | - | 23.0% |
| % 65 and over | 13.9% | 14.2% | 13.7% | 13.1% | 8.7% | - | 14.0% |
| % Minority | 59.4% | 27.7% | 44.3% | 24.2% | 39.8% | - | 35.1% |
| % Hispanic | 5.1% | 3.3% | 6.6% | 4.5% | 3.3% | - | 4.3% |
| % Less than Bachelor's Degree ^b | 83.5% | 70.5% | 71.5% | 48.2% | 67.5% | - | 71.2% |
| % With Disability | 18.6% | 12.6% | 14.7% | 10.3% | 7.8% | - | 13.6% |

Note.^a Persons 16 years or older; ^b Persons 18 years or older

Source: U.S. Census Bureau, 2011-2015 American Community Survey

Prepared by Wayne State University Center for Urban Studies (2017)

| Variable | Access Index Score - Visual Arts Organizations | | | | | | Total (Four Counties) |
|---|--|-----------|-----------|---------|--------|---------|-----------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| Number of tracts | 81 | 503 | 534 | 116 | 20 | 4 | 1,258 |
| Population | 254,843 | 1,847,112 | 1,657,532 | 391,756 | 55,788 | 10,222 | 4,217,253 |
| % in Labor Force ^a | 58.5% | 64.2% | 61.2% | 64.9% | 52.1% | 62.5% | 62.6% |
| Unemployment Rate ^a | 14.5% | 9.4% | 12.2% | 8.2% | 13.6% | 7.8% | 10.7% |
| Employment/Population Ratio ^a | 50.0% | 58.2% | 53.7% | 59.6% | 44.9% | 57.6% | 55.9% |
| % in Poverty | 24.1% | 12.9% | 21.7% | 13.8% | 37.7% | 7.1% | 17.3% |
| Mean Household Income | 53,226 | 79,188 | 67,001 | 85,062 | 57,644 | 114,180 | 73,045 |
| Median of Median Household Income | 34,409 | 60,250 | 41,056 | 57,813 | 22,375 | 64,207 | 49,201 |
| % of Households with SNAP/Food Stamps | 26.3% | 13.9% | 21.1% | 12.1% | 23.3% | 5.0% | 17.5% |
| % of Households with Social Security | 35.2% | 31.2% | 31.4% | 29.4% | 22.9% | 30.8% | 31.3% |
| Median of Median Age | 39 | 40 | 39 | 40 | 33 | 43 | 40 |
| % under 18 | 22.2% | 23.2% | 23.1% | 23.3% | 14.5% | 20.5% | 23.0% |
| % 65 and over | 15.8% | 13.9% | 14.0% | 13.8% | 9.6% | 13.8% | 14.0% |
| % Minority | 55.0% | 29.0% | 41.2% | 24.6% | 42.2% | 15.4% | 35.1% |
| % Hispanic | 2.1% | 3.0% | 5.9% | 4.9% | 3.6% | 4.3% | 4.3% |
| % Less than Bachelor's Degree ^b | 79.3% | 70.0% | 73.2% | 62.7% | 73.7% | 59.9% | 71.2% |
| % With Disability | 18.8% | 12.7% | 14.4% | 11.9% | 12.1% | 10.4% | 13.6% |

Note.^a Persons 16 years or older; ^b Persons 18 years or older

Source: U.S. Census Bureau, 2011-2015 American Community Survey

Prepared by Wayne State University Center for Urban Studies (2017)