GOVERNANCE, COMMODIFICATION, AND URBAN DEVELOPMENT: METROPOLITAN DETROIT RESIDENTIAL ASSOCIATIONS AS A VEHICLE FOR GOVERNANCE COMMODIFICATION

By

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ABSTRACT

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Governance is defined as creating conditions for ordered rule and collective action but is not limited to the formal institutions and actors defined by government (Stoker 1998). Exercising governance requires governing capacity, the formal and factual capability of public or private actors to define the content, delivery, and consumption of public goods and to shape the social, economic, and political processes by which these goods are provided (Knill and Lehmkuhl 2002). American local governance noticeably changed in the early 1960's with the emergence of Homeowners Associations (HOAs). HOAs are established by developers when property is subdivided and become governing bodies responsible for upholding restrictions, providing services, and maintaining the commons after properties are sold (McKenzie 2005; McCabe 2011). HOAs are automatic, mandatory membership organizations, chartered under state law, and have a corporate structure and purpose (McKenzie 2005; McCabe 2011). Infrastructure, amenities, and aesthetic standards are legally governed by HOAs but enforced by state authorities. This dissertation focuses on urban change and governance transformations while recognizing that cultural, economic, and political globalization processes are embedded and institutionalized realities of urban life in a global capitalist system. Understanding how development and governance transformations can affect a metropolis requires examination of a metropolitan area that has experienced such transitions. Residential governance associations have had a strong presence in Detroit, neighborhood associations and deed restrictions have been

documented long before HOAs emerged (Sugrue 2014). I explore spatial social inequality in metropolitan Detroit utilizing a governance commodification framework and by analyzing census and governance association data for Detroit and nearby suburb Troy, Michigan. Specifically, I ask what is the relationship between population characteristics and association development in Metropolitan Detroit? Since association governance structures are designed to protect property maintenance and values, what spatial relationships exist between population characteristics, and association development? Analyzing governance commodification through residential governance associations facilitates an in-depth understanding of governance and is worthy of sociological inquiry because governance commodification side-steps democracy while creating and defending inequality. Residential governance associations have the ability to create exclusive benefits and provide traditionally public services creating hierarchical classes of citizenship expressed spatially. Simply, residential governance associations are an additional level of governance created to provide exclusive benefits and subsequently create class differences between those with associations and those without.

To my parents Rick Wray and Nancy Giroux who always told me I could accomplish anything if I was willing to work hard, and for instilling my relentless work ethic.
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CHAPTER ONE: GLOBALIZATION AND GOVERNANCE TRANSFORMATION

Globalization transformed governing and political practices globally and profoundly affected modes of production and consumption (McMichael 2012; Ritzer 2015). Global connectedness escalated the advancement and spread of emerging technologies and expanded markets and profit opportunities through operations abroad (Sassen 2007). Global access redefined material and moral struggles over human rights, resources and the organizing principles of production, distribution, and consumption (Stiglitz 2003; Sassen 2007). New development, financial, and political alliances were required to maintain an institutionally governed organizational structure globally (Jessop 1998; Stoker 1998; McMichael 2012). Social transformations locally were inevitable for centers of production to remain competitive and support new demands. Metropolitan areas experienced drastic social change altering courses of development and modes of governance (Harvey 1989, 2009; Sassen 2007; McLeod 2011).

Globally cities and their surrounding metropolitan areas have transformed through globalization with transformations varying significantly. Studying metropolitan transformations helped expand knowledge of globalization processes beyond nodes of market interaction to develop an understanding of globalization as cultural, economic, and political (Sassen 2006). Critical urban scholarship highlights the importance of understanding cities as commodification sites, particularly how their transforming sociospatial organization, governance systems, and patterns of sociopolitical conflict affect commodification processes (Brenner, Marcuse, and Mayer 2012). This dissertation focuses on urban change and governance transformations while recognizing that cultural, economic, and political globalization processes are embedded and institutionalized realities of urban life in a global capitalist system.

Understanding how development and governance transformations can affect a metropolis requires examination of a metropolitan area that has experienced such transitions. Detroit, Michigan was among the first cities in the U.S. to experience globalization and transitioning governance practices from its rapidly industrializing automotive industry (Martelle 2012). Growth Machines, defined by Molotch (1993) as the ability of interconnected interest groups to utilize institutional social structures to intensify land use for profits, enabled Detroit's rapid growth and normalized urban development politics. Rapid expansion through growth machines was necessary to accommodate its rapidly growing population, support industry growth, and roadway development enabled developers to create new residential space on Detroit's periphery (Binelli 2012; Martelle 2012; Stiglitz 2013). Transformations in metropolitans such as Detroit unearthed new linkages between urban spatial forms, social organization, and economic activity (Molotch 1993; Sassen 2007; Harvey 2009).

Detroit has experienced drastic demographic shifts, peaking in 1950 with a diverse population just under two million, then losing nearly half its population by 2000 with black residents constituting a high percentage of the remaining population (Okrent 2009; Binelli 2012). As Detroit experienced population decline, economic turmoil, and increasing poverty, its racially segregated suburbs flourished (Stiglitz 2013). For example, according to the 2010 Census, Detroit's median household income was $26,325 while Troy a suburban community just nine miles north of Detroit reports a median income of $85,685 (U.S. Census Bureau 2010). Can governance be a factor in the differing development outcomes experienced in Detroit and Troy? Little research has focused exclusively on what roles governance plays in unequal outcomes, and how governance organizations such as Homeowners Associations (HOAs) may perpetuate unequal distribution of benefits and consequences. My dissertation utilizes the context of

globalization and governance transformation to examine the affects of association governance through a comparative study of Detroit and its suburb Troy, Michigan.

CORE RESEARCH ISSUES TO EXAMINE

American local governance noticeably changed in the early 1960's with the emergence of Homeowners Associations. HOAs are established by developers when property is subdivided and become governing bodies responsible for upholding restrictions, providing services, and maintaining the commons after properties are sold (McKenzie 2005; McCabe 2011). HOAs are automatic, mandatory membership organizations, chartered under state law, and have a corporate structure and purpose (McKenzie 2005; McCabe 2011). Infrastructure, amenities, and aesthetic standards are legally governed by HOAs but enforced by state authorities. I explore spatial social inequality in Detroit utilizing a governance commodification framework by analyzing census data for Detroit and nearby suburban city Troy. I explain the emergence of HOA's in Detroit through an understanding of their effects on population composition and spatial patterns of population change. Specifically, I ask *how have HOAs emerged in metropolitan Detroit? What is the relationship between population characteristics and HOA development in Metropolitan Detroit?* Since HOA governance structures are designed to protect property maintenance and values, *what spatial relationships exist between population characteristics, and HOA development?*

The introductory chapter of this dissertation includes a discussion of globalization, global governance, public private partnerships, and American local governance. Globalization provides a historical context for the emergence and transformation of governance practices globally and

locally, while illustrating how globalization processes normalize structural change culturally, economically, and politically. Next, government and governance are differentiated leading to an examination of the institutionalization and normalization of global governance and neoliberal rationalities. Further public-private partnerships (PPPs) are examined globally and locally identifying ambiguity and subsequent dilemmas for developing a comprehensive understanding of governance and public-private partnerships. Then, a discussion of Homeowner Associations (HOAs) and American local governance further contextualizes the focus of this dissertation while highlighting needs for further research. Finally, the structure of this dissertation is presented with chapter summaries.

GLOBALIZATION

The globalization era provides a historical and social context for researching metropolitan development and social transformation sociologically. Since its inception sociology scholarship has combined studies of urban space with dominant social processes of an era (Wirth 1938; Kasarda and Janowitz 1974; Sassen 2007; McMichael 2012). Globalization decreased limitations of geographic boundaries forcing government functions to transform leaving lasting social and economic affects (Dunning 1992; Agnew 1996; Harvey 1998; Stoker 1998, Goldsmith and Sykes 2001; Knill and Lehmkuhl 2002; Jessop 2002: Stiglitz 2003; Harvey 2005; Mah-Hui 2008; Kantor 2010; MacLeod 2011; McMichael 2012; Ritzer 2015). Globalization increased the use and spread of communication, transportation, and technology but required development of Governance institutions to communicate, facilitate, and regulate processes and interactions between national and global actors (Sassen 2007; McMichael 2012).

Globalization and its subsequent affects have been referred to as the most significant social change of our time (Stiglitz 2003; Ritzer 2015). Key developments included the formation of the World Bank and the International Monetary Fund (IMF), which created a system of fixed currency exchanges and an organizational structure for governing currency and exchanges (Stiglitz 2003; McMichael 2012). The World Bank and IMF function through mutually agreed upon membership rules that define interactions between the institutions and national governments (Goldman 2007). Western leaders from the U.S. and Europe dominated control of the IMF and World Bank creating a system of skewed power relations (McMichael 2012). Formation of the World Bank and IMF professionalized governance, normalized skewed power relations, and enabled capitalist expansion (Stiglitz 2003; Harvey 2005; McMichael 2012). Another key development was the creation of the World Trade Organization (WTO) a governance organization comprised of non-elected officials with governing capacity traditionally held by government actors. The WTO governs member nations and serves three major functions; first, help trade flow freely, second, provide a forum for trade negotiations, and lastly, provide a forum for trade dispute settlements among member nations (Shaker 2007; McMichael 2012). However, upholding social justice is not a responsibility of the WTO as social justice is not a specified function, the WTO is only responsible for upholding social justice through member disputes (Shaker 2007; Stiglitz 2003; McMichael 2012). The WTO and similar governance organizations do not assume responsibility for social justice because membership is considered voluntary and therefore social justice is relative to members' tolerance for injustice, or the point at which disputes are formalized. If members do not dispute inequality it can become a normative characteristic of the governance system and difficult for new members to dispute. Pivotal transformations within the U.S. include government expressing entrepreneurial

roles (Harvey 1989; Jessop 2002; MacLeod 2011), and the emergence of transnational corporations, whose reach extends beyond jurisdictional boundaries of government (Goldsmith and Sykes 2001; Rose 2007; McMichael 2012).

Government jurisdiction, or where governments can regulate activities, is geographically limited to a nation's boarders, with the exceptions of their citizens abroad or in international air and/or waters, and treaty agreements (Rose 2007). Private actors and corporations gaining reach beyond their government's jurisdiction formed space for individuals and corporations to negate strict regulations and/or taxation laws. Demand and reliance on governance beyond traditional institutions of government became necessary to communicate, institute, and enforce regulations seamlessly across boarders (Dunning 1992; Stoker 1998; Jessop 2002; Stiglitz 2003; Kantor 2010; Mittelman 2010; McMichael 2012). Conferences of appointed officials formed Non-Governmental Organizations (NGOs) and designed regulations for membership, currency exchanges and values, and participation to organize a globally interconnected economy. From a political sociology perspective, globalization forced traditional and socially accepted expressions of societal power and authority to transform away from authority controlled unilaterally at the national level and bilaterally through international treaties, toward authority governed through negotiations between government and private actors (Stoker 1998; Jessop 2002; Harvey 2005; Sassen 2007; McMichael 2012). Globalization normalized and legitimized private-sector involvement in governance and exclusive membership-based benefits. This next subsection describes how governance functions, how its legitimized, and identifies issues associated with governance.

Governing a Globalized World

Governing through NGOs allowed governments to extend their regulatory reach through consensus and created a governance system. Governance is defined as creating conditions for ordered rule and collective action but is not limited to the formal institutions and actors defined by government (Stoker 1998). Exercising governance requires governing capacity, the formal and factual capability of public or private actors to define the content, delivery, and consumption of public goods and to shape the social, economic, and political processes by which these goods are provided (Knill and Lehmkuhl 2002). Globalization normalized governing capacity shared between public and private actors as a natural adjustment. Governance was legitimized by its ability to extend government reach and perform more efficiently.

Stoker (1998) developed a governance perspective for understanding how governance functions and how governance is legitimized. He acknowledges that governments are limited by policy implementation standards and available resources, but recognizes ways governance can overcome limitations constraining governments. One way governance can overcome limitations is by negating decision-making and implementation bureaucracies to accomplish tasks quickly and more efficiently than governments. Another way governance is legitimized is by blurring boundaries and responsibilities to alleviate social and economic issues using discretion. Stoker also notes that governance provides autonomy for self-governing networks to function independently using private resources. Governance is legitimized by the ability to act autonomously, quickly, efficiently, and solve problems in ways governments cannot without burdening public resources. Having the ability to function more efficiently while preserving public resources does not guarantee governance will out perform government.

Scholarship has highlighted key dilemmas of governance systems noting that governance can create problems as easily as it can alleviate them. Stoker (1998) notes that governance can fail, and can normalize structures of self-governance where accountability is difficult to demand. In short, governance may be able to outperform government, but could underperform and create new problems. NGO's, such as the IMF, World Bank, and WTO, exemplify additional dilemmas posed by governance systems. Governance by unelected officials represents state interests but is not accountable to serve the public good (Stoker 1998; McMicheal 2012). Governance allows capitalistic endeavors to supersede social justice unlike government, which is obligated to override private decision-making to protect the public good (freeman and Mensch 1987). Governance presents dilemmas for collective action as accomplishing goals is subject to relationships of unequal power (Stoker 1998). For example, power between NGO members is unequal as some rely heavily on the aid, protection, resources, and trade from others (Stiglitz 2003; Harvey 2005; McMichael 2012). Governance allows market priorities to outweigh social justice and capitalist influence to define how power is structured.

Governance allows actors beyond government to negotiate and influence the processes and practices involved with governing. Historically, governance has created stratified power structures allowing the highest stakeholders greater power (Arrighi and Silver 2001; McMichael 2012). Private actors and corporations can leverage investments and force governments to negotiate restrictions and/or tax deals to compete for investments. Increased reliance and institutionalized governance has corresponded with growing inequalities, inequality between places geographically (Stiglitz 2003; McMichael 2012), and increasing polarization between the rich and poor (Pieterse 2002; Hackworth 2007; Harvey 2012). This next subsection briefly explains how increasing governance coincided with shifting societal values and normalized

neoliberal ideology that prioritizes market principles and enables exclusive benefits despite social risks.

Neoliberalism

Institutionalizing governance globally normalized a neoliberal, or laissez-faire, free-market economic structure. Neoliberalism is often described and explained as a motivated shift from collective-societal values to privatized-individualized values (Stiglitz 2003; Barnett 2005; Harvey 2005). Neoliberalism places market concerns above political and social concerns, by insisting that free markets, trade, and entrepreneurialism are normative and achieved through social and economic policies (Brown 2006; McMichael 2012). Institutionalizing governance as a normative social structure blurs traditional boundaries formerly separating public and private realms. In this sense governance works to enforce market-prioritized rationalities, tipping the scales of justice, and diverging from traditional democratic principles. Neoliberal governance inherently changed state regulatory powers, not necessarily suppressing state regulatory powers but requiring drastic restructuring as governance must now balance coercion and consent among individuals to gain and maintain legitimacy (Harvey 2005). A democratic state is partially predicated on the surrender of individual interest and liberties for the good of the whole society and is reinforced by the sovereign powers of government (Rousseau 1968). Neoliberal priorities expressed through governance institutionalized a structure lacking clear divisions between public and private and has relied on coercion to mask growing inequalities and maintain public legitimacy (Pieterse 2002; Stiglitz 2003; Harvey 2005; McMichael 2012).

Although institutionalized governance has been noted to correspond with growing social problems and inequality, explanations have ignored increasing power and participation of private actors, and instead focused on structural-functional neoliberal explanations (Pieterse 2002). Neoliberal ideology holds individuals accountable for their well-being, but claims that success and prosperity will "trickle down" the social system and eventually alleviate inequality as a "rising tide lifts all boats" (Stiglitz 2003). Inequality is viewed as a natural, almost inevitable component of capitalism, as capitalistic markets promote competition (Harvey 1978). Persistent inequality is explained under the umbrella term structural inequality, or inequality that is embedded in the development of a given social structure and is therefore persistent and accepted as legitimate (Stolte 1983). Research and policy have made attempts to curb affects from structural inequality, such as poverty, but have largely ignored power relations perpetuating its unequal structure (Pieterse 2002). Governance institutions have transformed the political landscape, creating spaces where governing capacity is subject to negotiations between private actors and elected government officials. Relationships between governance institutions and structural inequality have been ignored masking responsibility (Pieterse 2002) and making accountability difficult to demand (Stoker 1998). Governance is not exclusive to the global political landscape PPPs have a long history of shaping the American political landscape locally.

INSTITUTIONALIZING AND NORMALIZING GOVERNANCE LOCALLY

Literature acknowledges several transformations in governance such as entrepreneurial governance (Harvey 1989), global governance (Weiss 2005; McMichael 2012), increasing forms of governance (Stoker 1998; Dunning 1992; Knill and Lehmkuhl 2002), suburbanization

(Darden 2009; Vojnovic 2009), and political fragmentation (MacLeod 2011). Governance has taken many forms and continues to transform locally. Governance advances connectivity through cooperation but can escalate elite power in pursuit of capitalistic interests. Governance can exist as negotiations between public and private actors and/or organizations designed to control specific aspects of governing capacity. Governance organizations may serve functions similar to government, but are not expected to protect or serve the public. Government institutions are obligated to serve the public interest, and sometimes must override private actors to serve a greater public good or to solve problems caused by private decision-making (Freeman and Mensch 1987). Governance organizations are not democratic, they are self-governed and led by appointed officials (Harvey 2005). Governance organizations are not accountable or responsible for serving the public interest, and limited participation with governance organizations should set citizens expectations accordingly. Government officials are elected by citizens to serve the public interest and their participation sets expectations of accountability and responsibility for officials who are elected (Stoker 1998; Custos and Reitz 2010). Normalizing the use of both governance and government normalizes different citizen expectations despite serving similar functions. Increasing reliance on governance institutions normalized their social practice and demand through a variety of public-private partnerships (PPPs) (Custos and Reitz 2010).

Public-Private Partnerships

The term public-private partnership emerged in late 1990's legal jargon during the Clinton era (Custos and Reitz 2010), embodying noted governance transformations

corresponding with neoliberalism. No federal statutory definition of public private partnerships exists in the United States, as Congress has not enacted any general legislation regarding public private partnerships (Custos and Reitz 2010). Absence of a federal definition allows each state to determine how public private partnerships should be defined, and/or if a definition is required, creating ambiguity. The United States General Accounting Office (GAO) (1999) created a generally accepted definition that was endorsed by the Federal Highway Administration (FHWA) in 2004. The GAO defines public private partnerships (PPPs) as "contractual arrangements formed between public and private sector partners. These arrangements typically involve a government agency contracting with a private partner to renovate, construct, operate, maintain, and/or manage a facility or system, in whole or in part, that provides a public service." PPPs broadly delineate extensive sets of relationships ranging from simple contracts to complicated and technical development agreements (Custos and Reitz 2010). Custos and Reitz (2010) assert that PPPs are an umbrella-concept encompassing a multiplicity of contractual arrangements defining how government services and/or functions are privatized, especially pertaining to instances where private actor's roles are larger than traditional in determining how a service is rendered. Thus, PPPs can be understood as legally binding contractual arrangements describing how governing capacity is shared between private and government entities. Despite their name PPPs rarely fit the legal definition of a partnership (Custos and Reitz 2010), understood as a legal relationship between two entities contractually associated as co-owners of a business (United States General Accounting Office 1999). Typically partnerships include sharing profits and losses among partners, which is impossible for PPPs, since risks are primarily assumed publicly (Harvey 2005; Massey 2009; Custos and Reitz 2010).

PPPs straddle a once prominent distinction between public and private domains, a

distinction central to the experience of American culture (Freeman and Mensch 1987). On one hand, the private domain is associated with autonomy, individual freedom to make self-interested choices protected from encroachment by others. On the other hand, the public domain is associated with government institutions responsible to serve and protect the public interest (Freeman and Mensch 1987; Garner 2006). Obscuring boundaries between socially defined private and public domains can create accountability issues, and threaten the collective nature and identity of the public domain. The public domain is responsible for admonishing and overriding private decision-making to serve the public common interest (Freeman and Mensch 1987; Rose 2007), necessitating a clear distinction. American comparative law notes that the private-public distinction began declining in importance in 1945 and the emergence of PPPs in the late 1990's marked a governance era inspired by neoliberal ideology (Custos and Reitz 2010). Identifying inherently neoliberal governance practices as partnerships coerces public legitimation and acceptance of PPPs as social practice. Ambiguity surrounding PPPs can mask economic priorities and structural inequality by blurring public and private distinctions. Legitimacy towards PPPs can also legitimize structural inequality present in neoliberal governance practices.

Much of the United States is governed by PPPs, operating in small towns, suburban enclaves, and large cities as Business Improvement Districts, private agencies regulating downtowns, suburban community associations, and/or contracts between government and private corporations (Harvey 1989; Custos and Reitz 2010; Kantor 2010; MacLeod 2011). PPPs are an umbrella term embodying a multitude of governance relations spurred by globalization and fueled by neoliberal ideologies blurring the distinction between social life's public and private domains. Development of PPPs and changing importance of the public-private distinction

corresponds with Massy's (2009) description of shifts between globalization eras. Understanding that transformations have occurred does not explain how they have been experienced. A comprehensive understanding of governance transformations must examine how governance transformations are experienced, legitimized, and normalized. This history and background connecting globalization, governance change, and PPPs establishes the contextual framework with which we may better understand Homeowners Associations (HOAs).

Homeowner Associations

HOAs are governance organizations that operate through mutual acceptance of neoliberal rhetoric and enable private actors to benefit from the shared governing capacity of PPPs while increasing risks for the public good and those who lack means to participate. HOAs are PPPs, private in that they legally govern infrastructure, amenities, and aesthetic standards; but public in that they rely on local government to legitimize and normalize their authority as well as enforce HOA policies (McKenzie 1994; McCabe 2011). HOAs are contractual agreements between local governments and private entities typically property developers and/or homeowners. Where HOAs become responsible to maintain, provide, and govern infrastructure and amenities typically provided by local government, and homeowners are legally bound to pay membership dues to their HOA for services as well as abide by additional property restrictions designated by their HOA. Real-estate developers create HOAs when property is sub-divided to impose deed restrictions limiting how owners use their property and/or a developments common areas, restrictions are documented in a Declaration of Covenants, Conditions and Restrictions (CC&Rs) and filed in the local property records (McKenzie 1994; McCabe 2011). Development of HOAs

signifies an important transformation in residential governance where amenities, geographic boundaries, and a multitude of restrictions are formalized serving to separate residents from non-residents.

Deed restrictions function differently than HOAs, deed restrictions are a matter of private law and HOAs govern through PPPs. Deed restrictions are contracts between two private parties and simply restrict private property use and development, and if disputes arise over restrictions government officials settle the dispute between the private parties. HOAs are a governing body responsible for upholding restrictions while providing traditionally public services and amenities. Disputes between individuals and HOAs are not strictly matters of private law, for instance public services are matters of public law and are regulated beyond private contracts. Deed restrictions on property and development are not exclusive to HOA governance and have been used to govern property development for over 180 years (Martelle 2012; Sugrue 2014).

Governance systems can become problematic because PPPs and HOAs enable private actors to provide traditionally public services obscuring distinctions between the public and private and create issues for accountability. Public-private decision-making allows neoliberal rationalities to prioritize private interests at the expense of the public good. Particularly in the case of HOAs, where benefits and additional amenities are exclusively provided to members and determined by membership fees, residents with greater means receive better quality public services and amenities. Prioritizing private interests over the public good in provisions and delivery of traditionally public services creates inequality masked as benefits from individual capitalistic success. In this sense, wealthier residents can design exclusive communities and elect higher fees to produce better quality services and additional amenities, while residents unable to pay additional fees become naturally segregated second-class citizens. Residents

ability to purchase governing capacity enables public service quality to become related to the class system defined by neoliberal capitalism and sustaining localities becomes dependent on sustaining residents who can/will pay increased infrastructure expenses. Institutionalizing and normalizing local governance organizations such as HOAs was lengthy transformative process coinciding with society's changing acceptance of global governance systems and produced a culture of entitlement for wealthy residents at the expense of poorer residents. The history of American local governance and suburban development demonstrates linkages between governance, class, and public services and is discussed in the following section.

AMERICAN LOCAL GOVERNANCE, SUBURBAN DEVELOPMENT, AND HOMEOWNER ASSOCIATIONS

American urban and suburban development institutionalized and normalized governance practices locally through "growth machines" (Molotch 1993; Hayden 2003) and Common Interest Developments (CIDs) (McKenzie 1994; Cashin 2001; Hayden 2003). Growth machines refer to political alliances formed between real estate developers and transit owners, utilities, and local governments, often working together, to dramatically increase residential development and extend development into urban peripheries (Molotch 1993; Hayden 2003). Growth machines were a leading source of residential development between 1870 and 1920 during the peak of industrial capitalism (Hayden 2003), and were hegemonic as developers used local governments as vehicles to pursue self-interest (Molotch 1993). Development through growth machines institutionalized development relations between private developers and public entities such as utilities and local government. Public-private development relations became embedded in social structure as the public-private distinction began to blur normalizing American governance locally. Molotch (1993) focused on linkages between actions of growth entrepreneurs and

political actors, insisting that private influence could shape political actions beyond development relations.

Inspired by Howard's (1902) utopian "garden city" American local governance devised privatized housing developments known as (CIDs) (McKenzie 1994). CIDs utilize local governance to create and maintain private communities. Owners are required to pay fees to a residential association responsible for managing common areas, providing services, and enforcing rules imposed on owners by developers through legally binding covenants and bylaws (Cashin 2001). Privatized residential development through CIDs gained popularity in the 1920's, and extended governing capacity of development partnerships into property ownership through covenants and bylaws. Growth machines and CIDs utilize social structures (PPPs) and institutions (governance) to create nondemocratic hegemony, in the form of American local governance, over residential development. Urban peripheries developed by growth machines and CIDs utilized local governance to gain further distinction through political fragmentation.

Political fragmentation, or the dividing of urban and suburban space into separate governmental jurisdictions, allowed social classes to impose geographic segregation (Massey and Denton 1993; Kantor 2010; MacLeod 2011). Tax revenue of politically fragmented jurisdictions reflects social class wealth variance, and has been shown to account for disproportionate amenities and public services (Brueckner, Thisse, and Zenou 1999; Kantor 2010; MacLeod 2011). Disproportionate amenities and services based on tax revenues created competition for affluent residents and clusters of wealth (Harvey 1989). Political fragmentation strengthened linkages between government actors and capitalists, allowing elites to lobby for exclusive amenities and create geographic residential boundaries (McKenzie 1994; Hayden

2003; MacLeod 2011). Political fragmentation exploited class divisions and created spatial barriers to guard privilege and reproduce class divisions.

American local governance reforms noticeably changed in the early 1960's with the emerging strength of Homeowners Associations (HOAs). Utilizing the CID development model developers began tailoring and marketing residential developments toward politically fragmented homogenous residents. Developers began creating boutique CIDs or "single-interest neighborhoods," using elaborate deed restrictions to mandate specific lifestyles and exclude others (McKenzie 1994). HOAs are established by developers when property is subdivided and become governing bodies responsible for upholding restrictions, providing services, and maintaining the commons after properties are sold (McKenzie 2005; McCabe 2011). HOAs are automatic, mandatory membership organizations, chartered under state law, and have a corporate structure and purpose (McKenzie 2005; McCabe 2011). Infrastructure (roads, and connection to municipal sewage), amenities (parks and recreational space), and aesthetic standards (regulations on fencing, storage sheds, and pets), are legally governed by HOAs but enforced by state authorities. HOA's are private governing bodies generally unrestrained by state laws and democratic electoral practices (Cashin 2001; McCabe 2011), but must be considered PPPs, since they are contractual agreements between private actors and local governments to provide and regulate traditionally public services. Local HOA governance further blurs public private distinction as HOAs can create restrictions and additionally tax residents but rely entirely on state authorities to enforce policies.

Estimates indicate dramatic increases in HOA governed communities nation-wide, rising from roughly 5,000 communities and approximately 1 million residents in 1970 to roughly 164,250 communities and approximately 32.85 million residents in 2013 (Community

Associations Institute 2015). Perspectives toward HOA governed communities are divided, some scholars are critical of HOA communities' tendency toward exclusion (McKenzie 1994), and political fragmentation (Vojnovic and Darden 2013; MacLeod 2011), while others applaud their efficiency (Nelson 2005) and potential as a tool for urban regeneration (Ellickson 1982). The central issue for debate revolves around the extent to which HOAs are able to benefit some residents while excluding others and whether political fragmentation creates benefits for some that outweigh the risks for others.

Over twenty-five years ago, the Advisory Commission on Intergovernmental Relations (1989) referred to HOAs as the nations largest privatization experiment (McCabe 2011). Despite dramatic increases in HOA governed communities nationwide, very little research has empirically targeted how HOA governance affects community outcomes differently. For example, can HOA governance affect a city's demographic characteristics beyond differences across individually governed communities, and/or how are such affects distributed spatially? Empirical research examining how HOA governance affects cities and residents could significantly contribute to ongoing debates over the benefits and efficiency HOAs provide for some and risks to the public good absorbed by other residents. Data regarding HOAs are limited, they are not tracked by state governments, included as discrete entities in the U.S. Census, or required to be comprehensively mapped by local governments (McCabe 2011). Information about HOAs is located in local property records, where they are founded (McCabe 2011), complicating access and means to obtain data for research efforts. The public-private nature of HOA governance and its associated data has remained an untapped resource despite having the potential to inform our sociological understanding of governance. The affects of governance

commodification in the form of HOAs are examined by this dissertation and the following section explains how this examination is structured.

DISSERTATION STRUCTURE

This dissertation includes six chapters addressing the aforementioned research questions. Chapter two discusses the importance of public private partnerships in the fragmented development of metropolitan Detroit's urban and suburban spaces throughout the city's economic and residential development and urban change. The emergence of local governance institutions and association governance in metropolitan Detroit is discussed through a lens of governance commodification. I examine the various social relations that have controlled governing capacity throughout Detroit's development, decline, suburbanization, and resurgence utilizing my commodity governance framework. A commodity governance framework is employed to examine the influence of governance in Detroit's demographic change. Then a brief discussion demonstrates how governance has influenced Detroit's amenities, public services, and government. Chapter two concludes with the history and development of Troy, Michigan, a suburban city north of Detroit, provides a contrasting experience of development and governance.

Chapter three employs a notion of governance commodification as a framework for thinking about the roles governance plays in structuring U.S. communities. Theorizing governance as a commodity creates a mobile, flexible understanding of the various public-private partnerships governing global society and controlling governing capacity. Understanding governance as a commodity allows existing and/or developing social relations to define its social

character globally without geographical or state limitations found in previous literature. The roles of governance in structuring U.S. communities are examined utilizing commodity governance as a theoretical tool. I introduce urban growth and development regimes as governance structures and examine how they have transformed with urban and suburban landscapes. Next, I identify the expanding market of governance commodification throughout urban development and redevelopment practices. Then I differentiate commodity governance from previous theoretical explanations of governance. Chapter three concludes by discussing residential governance commodification and identifying four main research hypotheses investigated by this dissertation.

Chapter four explains my empirical strategy to research the affects of subdivision development and governance structures on population composition in Detroit and Troy, Michigan. Research hypotheses are restated and data collection methods, description of data, operationalization of concepts into variables, and areal interpolation methods are explained. Finally, rationale for using exploratory spatial analysis, ordinary least squares and geographically weighted regressions, and grouping analysis methodologies for hypothesis testing and implementation plans are presented for each hypothesis.

Chapter five explores analysis results for each hypothesis. Results will determine possible spatial relationships between Detroit and Troy's demographic characteristics. The effects of governance structures are on population characteristics in Detroit and Troy, Michigan are investigated. Finally, the spatial arrangement of population characteristics and governance structures are investigated. Maps generated using ArcGIS allowing spatial data to be visualized for each city section in Detroit and Troy. Mapping spatial data illustrates possible geographic

patterning among variables and allows for patterns to be compared visually across geographic units of analysis (city section).

Chapter six utilizes my governance commodification framework to understand population composition effects in each city. First, I begin with a brief summary of my research findings. I discuss how governance commodification contributes to existing sociological knowledge. Then, I examine how findings from Detroit and Troy, Michigan contribute to discourse on urban governance and governance transformation. Theoretical and policy implications are identified and discussed. Next, limitations of this dissertation's data and research findings are discussed. Finally, I discuss how this research can be improved and expanded in the future.

Chapter one introduced how governance functions globally and locally in organizational forms similar to government but with distinctly different objectives and obligations. Necessity and uses for governance have increased dramatically, yet regulations and a universal definition remain vague and legislation over PPPs is absent due to their inherently public-private nature. Metropolitan Detroit's history demonstrates how commodified governance created socially stratified distinction and unequal distribution of benefits and consequences; first, during the automotive industry's growth and success and again during its decline and increased suburbanization. Chapter two examines how governance was institutionalized and normalized in metropolitan Detroit and transformed throughout its history.

CHAPTER TWO: GOVERNANCE AND THE METROPOLITAN DETROIT AREA

Studies focused on Detroit and its surrounding metropolitan communities have long investigated harsh inequalities between Detroit neighborhoods and its surrounding suburban communities (Okrent 2009; Binelli 2012; Vojnovic and Darden 2013; LeDuff 2013; Sugrue 2014; Maraniss 2015). In addition to economic changes from globalization, research has examined "white flight," where large numbers of Detroit's affluent white population fled the city (Darden and Kamel 2000; Okrent 2009; Sugrue 2014) and suburbanization, an increasing number of suburban communities being developed around Detroit has been the primary explanation for Detroit's residential decline (Binelli 2012; Vojnovic and Darden 2013). Since the U.S. Financial Crisis of 2008-09, Detroit and its surrounding metropolitan communities have been a media focal point as the nation's most affected major metropolitan city with citizens experiencing drastically differing outcomes (Stiglitz 2013). In 2013 Detroit made history declaring the nation's largest municipal bankruptcy (Davey 2014), while *Fobes* Magazine's list of "400 Richest Americans" contained eleven Michigan residents six of which reside in Metropolitan Detroit (Witsil 2013). Detroit has been engendered with "damsel in distress" narratives by *Time Magazine* and *The New York Times* (2009-2015) seeming to foreshadow the city's inevitable rescue by its suburban neighbors and appointed governing officials.

Chapter two examines Detroit's development and race relations' history to provide an in-depth local social context for the exodus of Detroit's affluent white population and rise of suburban communities. Next, I discuss Detroit's experience with globalization and how local industry and population were affected. Then the roles of governance in Detroit's economic, social, and residential transformation are discussed. The development, growth, transformation of

Troy, Michigan, a suburban city north of Detroit, is discussed next to contextualize the contrast between Detroit and its neighboring suburbs.

DETROIT'S ECONOMIC AND RESIDENTIAL DEVELOPMENT

Detroit, Michigan was once the epitome of the "American Dream," but has recently garnered significant media attention for its descent from recognition as distinctly wealthy U.S. city distinctly poor (Binelli 2012; LeDuff 2013). Newsworthy headlines have been limited to corruption trials, emergency financial sequestration, and municipal bankruptcy (Stiglitz 2013). Detroit was once a pivotal point for U.S. industrial growth, from trade among the great lakes to revolutionizing steelmaking processes and pioneering the auto industry (Martelle 2012). Such success led to rapid population growth, growing from 45,620 residents in 1860 (Martelle 2012) to over one million residents by 1921 (McCarthy 1997). Once emblematic of capitalistic success, Detroit was referred to as the "arsenal of democracy" (LeDuff 2013), with its population exceeding 1.8 million people in 1950, as the nation's fifth largest city (Okrent 2009). But more recently Detroit has only made headlines for population decline, poverty, and crime (LeDuff 2013; Stiglitz 2013). Detroit's economic, political, and social challenges can be linked to governance throughout development, globalization, and Detroit's response to globalization.

Detroit's development, from the first subdivision of farmland resulting in the elite Brush Park neighborhood, to the auto industries economic and social control over the city and its surrounding suburbs, is linked to governance transformation. Many of Detroit's most influential capitalists held positions of municipal power resulting in personal gain (Martelle 2012).

Private-sector participation in governance fueled Detroit's rapid development and globalization through policy favoring industry expansion (Binelli 2012; Martelle 2012; LeDuff 2013; Maraniss 2015). Detroit's decline can also be linked to governance, exemplifying Sassen's (2006) explanation of transition failure, as Detroit's industry leaders who fueled globalization through governance disengaged when Detroit's success no longer fueled theirs. Detroit's early development and economic success emerged from construction of the Erie Canal and Sault Sainte Marie locks.

Development of Detroit

Opening the Erie Canal in 1825 and the Sault Sainte Marie locks in 1855, fueled industrialization and wealth accumulation in Detroit, leading to its commonly referenced moniker "The Paris of the West" (Martelle 2012). Extreme wealth accumulated from the opening of the Erie Canal in 1825, and Sault Sainte Marie locks in 1855 giving birth to new trade routes and an elite social class (Martelle 2012). Influential examples of Detroit elites who exploited commodity governance during early development include, Edmund A. Brush and Henry Ford. Martelle (2012) identifies linkages between Detroit's success in early development and the financial success of both men through their political and regulatory affiliations. More specifically Brush and Ford acquired governing capacity from which they benefitted individually.

Martelle (2012) credits the development of Detroit's first exclusive neighborhood, Brush Park, to the subdivision of the Brush family farmland, which was subdivided initially in 1835, and again in 1862. In 1835 Edmund A. Brush applied deed restrictions when he developed his

family's farmland into a residential single-family subdivision, later named Brush Park, and housed Detroit's elite in an exclusive subdivision (Martelle 2012). Requirements specified that homes were to be built within a specific amount of time, identified minimum standards and values, and specified a minimum lot size solidifying the developments exclusiveness (Martelle 2012). He notes that major construction took place between the 1850's and 1870's; and that the subdivision and development of the Brush farmland coincided with other important milestones in Detroit's developmental history. Significant milestones noted by Martelle (2012) include: First, the expansion of Detroit's water system, from servicing 6,950 households (using 63 miles of pipe) in 1860 to servicing 14,717 households (using 130 miles of pipe) in 1870 to servicing more than 27,000 families (using 242 miles of piping) in 1883. Second, streetcars were introduced in 1862 the same year Brush began subdividing his land farthest from the city's center, and streetcars were an entity of the city's railway service.

Martelle (2012) points out that Brush was the son of Detroit's second appointed mayor and his father's position and relations with Detroit's elite enabled him to gain positions of power and influence. He also highlights connections between Detroit's developmental milestones and leadership roles held by Brush such as: a city recorder, member of the water board, a fire brigade volunteer, he participated in devising and enacting local regulations, and was instrumental the establishment of city's first railroad connections. He also notes that Brush made his fortune subdividing and developing his family's landholdings, where he maximized profitability through rigid contract requirements. His contract requirements solidified the exclusiveness of the neighborhood and maintained property value. Instead of selling each lot, he maintained the titles to many lots and leased the lots to homeowners. Development of the Brush Park neighborhood

during the same time frame as utility and transportation development closely resembles later suburban development through growth machines.

Peterson (1976) and Martelle (2012) established similar linkages between Detroit's industrial development and the success of automakers. Both scholars concur that much of the automobile industry's success was achieved on the backs of Detroit's immigrant population, whose origins were mainly European and African American. Detroit's population in 1900 was roughly one third foreign-born and one and a half percent black, and by 1920 more than half of Detroit's population was foreign born or first generation Americans (Martelle 2012). Assimilation programs were launched to indoctrinate Detroit's growing immigrant population with language, culture, and citizenship education. The Board of Commerce funded classes teaching English language, culture, and citizenship and solicited participation from every factory that employed immigrants (Martelle 2012). Saxon Motor Company required night classes for employees to learn English, Solvay Process Company increased wages when employees successfully learned English, Packard's "Americans First" programs restricted promotion eligibility to natural or naturalized citizens, and Ford created a program to teach employees American capitalist values (Martelle 2012). Being an American became related to participating in capitalism. Ford's assembly line manufacturing style enabled workers to be dehumanized leading to rigid social class barriers.

Auto industry leaders influence over Detroit's development was found to be more indirect, and often occurring through his relationships with municipal leaders, most similar to today's public-private partnerships. Between 1916 and 1929 roughly half a million African Americans migrated to northern cities from southern states referred to as "The Great Migration" (Sugrue 2014). Peterson (1979) describes how African American southerners were recruited to

the "Motor City" as a campaign launched by the auto industry but facilitated by Detroit's Urban League, Detroit's Employers Association, and Labor Bureau. She notes that agencies facilitating auto industry recruitment educated workers on "acceptable work habits" and fostering anti-union perspectives to create docile employees. Peterson contends that Detroit's housing shortage during World War I resulted in racial segregation. Detroit's European immigrants and African American communities suffered most from overcrowding, but previously established immigrant communities found greater upward mobility. She also highlighted common practices from the Board of Health that allowed autoworkers to live in condemned housing at the request of Ford's chief social worker, despite great health risks between 1910 and 1930. Peterson reports that Detroit Health Department investigations concluded that eliminating over-crowding and unsanitary housing could have prevented a significant number of fatalities from pneumonia (two thirds) and tuberculosis (half). Social class divisions and tensions among immigrant, African American, and white workers were recognized as a normalized inequality. The following subsection discusses the influx and marginalization of Detroit's immigrant populations.

Immigrant Populations in Detroit

Detroit's history of industrial innovation has a long history of attracting immigrant populations. Immigration led population change in Detroit has been a dynamic process intertwined with economic growth and expansion, and unique social status distinctions. Less reported is how Detroit's immigrant populations were out-casted upon arrival and gained social capital at the expense of new immigrant populations (Peterson 1976; Sugrue 2014; Martelle 2012). European immigrants who first flocked to Detroit consisted of Armenians (Papazian and

Sirian 1983), Sicilians, Polish, Bulgarians and Macedonians (Peterson 1976; Jacobs 2009; Martelle 2012). Armenian immigrants formed a recognizable community in 1909 since 1915 Detroit's Armenian population has become one of the larger Armenian diasporas in the U.S. (Papazian and Sirian 1983). Southern African Americans followed, and were recruited to work in Detroit's growing automotive industry (Peterson 1976; Martelle 2012). European immigrant workers gained acceptance when African American workers arrived, some partook in hazing African American workers (Peterson 1976). Some became slumlords, renting their dilapidated housing to African American workers, enabling them to relocate to suburban housing (Martelle 2012). Detroit's industrial European immigrant workers had a much different experience than southern African American workers. Papazian and Sirian (1983) describe the experiences of Detroit's Armenian immigrant industrial workers as opportunity for future generations. Armenian immigrants often lacked formal education but valued education, and strove to provide an education for themselves and their children enabling many Armenians to economically transition when manufacturing jobs declined.

African American immigrants experienced tension far beyond the experience of European immigrants; social class and status distinctions were redefined as African American immigrants increased. European immigrants primarily resided in homogenous enclaves, but were afforded education and economic opportunities to become upwardly mobile (Martelle 2012). Racial discrimination from co-workers and employers prevented black immigrants from high paying jobs or achieving leadership roles (Peterson 1979; Martelle 2012). As Detroit's African American population increased dramatically tripling from 40,838 in 1920, to 120,066 in 1930, and nearly tripling again in 1950 rising to 300,506 (Sugrue 2014), race-based discrimination became institutionalized. Few housing units were available to Detroit's

increasing African American population and available units were segregated in undesirable areas (Sugrue 2014). Housing conditions for African American residents were reprehensible and worsened as multiple families were forced to share units available to African American residents (Martelle 2012). Substandard housing conditions were ignored by city officials at the encouragement of industry leaders (Peterson 1979; Sugrue 2014; Binelli 2012), and normalized discriminatory treatment.

Detroit's black, immigrant, and white residents experienced social unrest that echoed inequalities found in Detroit's rapid industrial growth. Detroit neighborhoods were heavily segregated displaying clear racial and ethnic boundaries. Immigrant enclaves such as Hamtramck, known for its Polish population, and Delray a predominantly Hungarian community, remained ethnically homogenous throughout the twentieth century (Sugrue 2014). The influx of southern African American during the Great Migration altered Detroit's social class structure allowing European immigrants to gain social status at the expense of African American residents (Peterson 1979). Segregation and discrimination shifted from emphasizing citizenship toward emphasizing race (Peterson 1976; Sugrue 2014). African American residents were concentrated on Detroit's east side in the "Black Bottom" and "Paradise Valley" neighborhoods (Sugrue 2014). This next subsection discusses residential segregation and governance structures that have enabled segregation in Detroit.

Residential Segregation

Residential segregation in Detroit is as entrenched in the city's social fabric as its automotive identity, yet empirical analysis of restrictive social structures governing residential

neighborhoods has been limited by their public-private nature and complicated by access to readily available data. Scholarship does recognize governance as a factor contributing to residential segregation, from early residential development's restrictive contracts (Martelle 2012), and neighborhood covenants (Sugrue 2014), to voluntary neighborhood associations and involuntary HOAs (McKenzie 1994; MacLeod 2011; Sugrue 2014). Detroit's exclusive and elite Brush Park neighborhood, which was first subdivided in 1835 with construction peaking between the 1850's and 1870's, utilized restrictive development contracts requiring homes to be built to specific size and quality standards (Martelle 2012). Brush Park's restrictive development contracts are the first known uniform set of restrictions that governed a Detroit neighborhood, and predate the emergence of racially restrictive covenants discovered by Harold Black (1947) to have emerged in 1910 (Sugrue 2014). As Detroit's population grew and diversified economically, ethnically, and racially the use of formalized restrictive covenants increased. Black's (1947) survey of subdivision deeds found that every subdivision developed between 1940 and 1947 contained ethnic, racial, and/or religious restrictive covenants (Sugrue 2014).

Restrictive covenants served as social distancing tactics to create geographic separation between various economic, ethnic, and racial groups. Neighborhood Improvement Associations emerged to enforce restrictive covenants and define boundaries by streets, subdivisions, and/or square miles (Sugrue 2014). Neighborhood Improvement Associations became a formalized organizational structure to design, implement, and protect restrictive covenants as well as define distinct boundaries of social separation in residential neighborhoods. By 1938 the Boston-Edison and Indian Village neighborhoods had established formal associations defined by street boundaries and unifying restrictive covenants (Michigan Department of Licensing and Regulatory Affairs 2016). In 1940 realtors were formally encouraged to form associations and

use restrictive covenants to benefit communities by the Eastern Detroit Realty Association's President. He suggested that realtors target neighborhoods in which families of color had recently become residents, as they would be easily encouraged to develop associations, since association members could place restrictions on land, property development and maintenance, and even neighborhood residents (Sugrue 2014).

Neighborhood association's use and enforcement of restrictive covenants were found to vary based on resident's cohesiveness, growing minority population, and proximity to expanding minority neighborhoods (Sugrue 2014). Prior to the 1948 Supreme Court ruling in *Shelley v. Kraemer* that found race-specific restrictive covenants illegal, civil rights groups were successfully challenging race restrictive covenant use (Sugrue 2014). Race-specific restrictions clearly demonstrate discriminatory practices, but a multitude of restrictive covenants exist that do not display obvious prejudice or discrimination and can still create social barriers. Detroit's segregated residential neighborhoods reflected tension among residents that persisted as Detroit expanded, next I move to a discussion of Detroit's expansion into a metropolitan area.

URBAN CHANGE IN METROPOLITAN DETROIT

Detroit's early industrial development and later automotive industry employment opportunities attracted population growth but increased demand outside of Detroit led to rapid expansion. Martelle (2012) reports census counts of Detroit's population reaching 466,000 people with 215,000 employed, and more than half (122,000) working in manufacturing by 1910. Automobile manufacturing employment statistics were counted by the census for the first time that year with 5,304 reportedly employees. By 1929 158,000 of Detroit's 1.6 million

people were reportedly working in automobile manufacturing. Consumer demand for automobiles grew worldwide leading manufacturers to expand outside of Detroit. Ford opened his River Rouge plant in Dearborn, Michigan, and General Motors opened factories in Denmark (1923), France and Germany (1925), Argentina and Brazil (1925), India (1928), and China (1929).

As the number of automobile drivers increased the Wayne County Road Commission constructed an experimental concrete roadway spanning one mile, over what is now Woodward Avenue near Ford's Highland Park factory (Martelle 2012). Success from the experimental roadway attracted engineers from across the country in 1909 only 394,000 square yards of concrete roadways existed nationwide, increasing dramatically to 19.2 million square yards in 1914 (Martelle 2012). Success of the concrete roadways led to the Federal Road Aid Act, which grew into the 1921 Federal Highways Act, and eventually expanded into today's interstate freeways (Martelle 2012). The Interstate Highway Program, launched in the 1950's, enabled suburban commuters to subsidize automobile costs, contributing to blight, while federal funding for mass transit was denied until the 1970's (Kantor 2010). Increasing roadway innovation and construction for personal-use vehicles decades before mass transit planning enabled uneven decentralization in and around metropolitan Detroit. Highway construction enabled decentralization, suburbanization, and furthered existing social and geographical divides between suburban and urban residents (Kantor 2010).

The ease of the freeway system and federal incentives allowed jobs and the upwardly mobile to leave central cities and form new suburban spaces (Harvey 1989; Kantor 2010). Prompting suburban designs that promoted exclusivity and segregation, discontinuous winding roadways deterred traffic and maintained privacy (Vojnovic 2009). Detroiters capitalized on

their means to spread out geographically and differentiate themselves. Wealthy residents clustered northwest of Detroit in Oakland County, creating one of the nations wealthiest counties (Binelli 2012). Detroit's urban change exemplifies Molotch's (1993) political economy of growth machines, where he describes the social, economic, and political forces as contributors of urban arrangements. Growth machines require public-private partnerships between developers and government entities where relationships are established and reflected in the spatial and social conditions of the resulting built environment (Molotch 1993). As Detroit's freeways and residential development expanded distinctly different spaces emerged throughout the city and surrounding metropolitan area (Binelli 2012; Sugrue 2014).

Detroit experienced decentralization and political fragmentation as the expanding freeway system enabled automobile owners to live farther outside the city. Political fragmentation furthered social distancing between urban and suburban residents, and accelerated inequality between fragmented municipalities (Harvey 1989; Kantor 2010; MacLeod 2011). Suburban political fragmentation allowed residents to relocate their tax contributions to smaller suburban jurisdictions, at the expense of the central city's tax base (Vojnovic 2009; MacLeod 2011). This political fragmentation led to intergovernmental competition, where Detroit and suburban governments were forced to compete to attract corporate investment. Increasing public entrepreneurship led to a trend of increasing relations between government and businesses, described by Harvey (1989) as public-private partnerships. Detroit's urban change and outward suburban expansion can be linked to its globalization, which increased intergovernmental competition by increasing fluidity among corporations and residents.

Detroit as a Global City

Detroit's automotive industry had made investments in factories and employees overseas since the 1920's (Martelle 2012), but Detroit's transition did not mirror the industries strength (Okrent 2009; Binelli 2012). McMichael (2012) describes globalization as a private project utilizing political intervention and geographically unlimited markets to serve the interests of powerful elites while simultaneously contributing to poverty and social class polarization. Globalization has driven questions regarding the roles and interactions of national and global urban entities as well as control over them (Sassen 2007). In the context of urban environments four contested frameworks have been identified and used to explain urban transformation throughout globalization and are applied to Detroit's industrial globalization in this subsection.

The first framework describes capital formation and the rise in multinational corporate headquarters agglomeration. This framework introduced "world cities" and the new international division of labor (Cohen 1981). Detroit's industrial development circumstances created a natural headquarters for the US automotive industry and anchored dependent suppliers and spin-off industries (Logan and Molotch 2007). Detroit does not attract corporate headquartering and exports design and innovative functions to cities known as headquarter and/or innovation cities (Logan and Molotch 2007). Although the US automotive industry corporate headquarters are located in Detroit, the city has failed to attract headquartering beyond the automotive industry, which was credited to convenient development circumstances.

The second framework is a neo-Marxist perspective claiming globalization drives poverty and social polarization (Friedmann 1986). Detroit attracted and recruited immigrant populations during industrial development, but segregated working and residential housing conditions

institutionalized second-class citizenship based on citizenship status and race (Martelle 2012; Sugrue 2014). Globalization exasperated tensions among Detroit's already segregated citizens, evidenced by affluent white residents gradually vacating the city from 1950 to 2000, while predominately affluent white suburban neighborhoods flourished (Okrent 2009; Stiglitz 2013; Sugrue 2014). By the 1970's Detroit residents were predominately African American and in 1970 Detroit accounted for 37.9% of Detroit regional employment (Vojnovic and Darden 2013). In 2000 Detroit only accounted for 12.9% of Detroit regional employment, employing 345,424 people roughly one third of the city's population (Vojnovic and Darden 2013), and by 2009 the city's unemployment rate reached 28.9% (Okrent 2009). In contrast, affluent predominately white suburban communities were experiencing employment growth, by 2000 Troy, which was not among the regions top ten employers in 1970, became the regions second highest employer accounting for 5.1% of Detroit regional employment, employing 135,977 people roughly one and a half times Troy's population (Vojnovic and Darden 2013). Detroit's segregated African American population experiencing economic downturn from globalization amidst suburban growth is consistent with this framework claim of increased social polarization.

The third framework describes the shift from manufacturing to producer services, and the changing labor needs from full-time employment to part-time employment (Sassen 2007). Technological advancements enabled increasing forms of automated manufacturing and decreased manufacturing jobs as machines replaced employees in factories (Sugrue 2014). Sassen (2001, 2006) describes how cities must be able to transition, and adapt to new forms of economic activity. Detroit had been a successful industrial center for one hundred years, but Detroit was unable to transition throughout globalization to a corporate headquarter or innovation city (Logan and Molotch 2007). Lastly, Reed (1989) introduces a framework of cities

as financial centers with corporate banks as an economic focal point. Financial corporations had a greater presence in Detroit's suburban communities, but in 2007 local mortgage company, Quicken Loans, moved its headquarters from the suburbs to downtown Detroit (Okrent 2009). Each urban globalization framework provides a structure for examining Detroit's experience; next I discuss the roles of governance through each framework.

Binelli (2012), Martelle (2012), LeDuff (2013), and Bomey (2016) describe how Detroit and Detroiters experienced decentralization, political fragmentation, public entrepreneurship and the onset of urban change amidst globalization. They discuss changes in labor demand and location as an effect of changes in the economy and show how residential segregation and suburban development created lasting racial and class boundaries. They detail Detroit's growing social polarization noting a decline in the middle class and growth of both upper and lower classes. These authors describe globalizations impacts on Detroiters but the impacts felt by Detroiters are not solely the effects of globalized capitalism. Globalization provided space for capitalists to employ neoliberal policies and ignore social justice.

General Motors relocated factories and manufacturing jobs overseas throughout the 1920's, but negative effects typically associated with economic globalization were curbed by defense contracts. Detroit's automotive companies won military contracts during both World Wars, The Vietnam War, and the Korean War maintaining local manufacturing employment (Sugrue 2014). But policy changes combined with increasing ease for corporations to globalize during the 1950's, created the beginnings of a decline for Michigan manufacturing (Jacobs 2009). Manufacturing employment decreased from 60% of Michigan's total employment in 1955 to just above 15% in 2005 (Jacobs 2009). Michigan's working class relied heavily upon

manufacturing; its decline took a massive toll. Those who were able to transition away from manufacturing fled to new employment opportunities in the surrounding suburbs.

Governance played major roles in building Detroit's geography, infrastructure, and population. From recruiting southern African Americans during the "Great Migration" to influencing municipal authorities to ignore inadequate housing and health standards (Peterson 1976). Governance relationships also normalized second-class citizenship and marginalization of new immigrant populations (Peterson 1976; Martelle 2012; Sugrue 2014). Social polarization and marginalization is evident throughout residential neighborhoods in and around Detroit. This next section discusses how governance has shaped neighborhoods in Detroit and the surrounding metropolitan area.

Residential Governance

Formation of neighborhood associations and use of restrictive covenants created segregated neighborhoods differentiated by social class and race (Sugrue 2014). Restrictive covenants have been found to dictate lot size, building quality, occupancy type, aesthetic standards, and maintenance standards (McKenzie 2005; McCabe 2011; Sugrue 2014). Neighborhood associations expanded deed restrictions by formally specifying neighborhood boundaries, and identifying as a body of collective individuals. Forming neighborhood associations required some degree of homeowner participation, either by designing neighborhood boundaries and restrictions or voluntarily complying to gain membership (Sugrue 2014). Neighborhood associations differ dramatically, ranging from completely voluntary associations to legally recognized automatic membership organizations requiring membership

fees. Associations were designed by homeowners residing in neighborhoods upon formation and reflected their varying social status, cohesiveness, and desire for exclusivity (Articles of Incorporation Indian Village Association and Boston-Edison Protective Association 1938; Grixdale Park Property Owners Association 1955). Development of neighborhood associations marks an important governance transition, where homeowners began to formally create boundaries and restrictions to distance themselves from other residents geographically, economically, and socially. Detroit's residential landscape was also shaped by PPPs between local banks, real estate brokers, and government and mostly targeted residents of color.

PPPs between federal housing policy officials, local bankers, and real estate brokers institutionalized discrimination against black residents. Discrimination became embedded in federal housing policy, financial lending practices, and real estate practices through "red lining" (Massey Denton 1993; Sugrue 2014). Metropolitan areas were mapped and sections were coded by characteristics such as building conditions, amenities, infrastructure, and ethnic/racial composition of residents (Sugrue 2014). Coded sections were translated into scores used to determine lending risk by the Home Owners' Loan Corporation (HOLC). The two lowest scoring categories denoted the highest lending risk and were ineligible for HOLC loans. Predominately black neighborhoods invariably received the lowest score, symbolized by red outlining, preventing black homeownership and devaluing real estate near black residents (Massey Denton 1993; Hayden 2003). Discriminatory housing practices had been established before the 1920's (Peterson 1979), with restrictive covenants prohibiting sales or occupancy to particular ethnic, racial, and/or religious groups emerged in Detroit after 1910 (Sugrue 2014). Redlining practices created systemic discrimination through HOLC, the first federally supported mortgage-lending program (Massey and Denton 1993; Sugrue 2014). Detroit's white

neighborhoods where properties predominately recorded restrictive covenants were awarded higher HOLC appraisal ratings (Sugrue 2014). HOLC's rating system influenced private bank lending practices, private neighborhood investments, and most influentially underwriting practices of the Federal Housing Administration (FHA) and Veteran's Administration (VA) during the 1940's and 1950's (Massey and Denton 1993; Surgue 2014).

The FHA and VA were created to spur economic stimulus and transition housing investment from a government to private endeavor, by federally guaranteeing the collateral value of loans by private lenders (Massey and Denton 1993; McKenzie 1994). Nationwide ten million homes were constructed through private loans secured by the FHA and VA between 1946 and 1953 (Hayden 2003). HOLC's discriminatory lending practices continued functioning through the FHA and VA (Massey and Denton 1993; McKenzie 1994; Hayden 2003). 186,000 single-family homes were constructed in metropolitan Detroit during the 1940's, however only 1,500 were available to black residents (Sugrue 2014). New housing was constructed on Detroit's periphery and developers targeted white buyers (Sugrue 2014). Black buyers were relegated to homes in older neighborhoods where discriminatory lending practices limited financing options (Sugrue 2014). New construction on Detroit's periphery enabled white residents to purchase new homes outside the city and discriminatory lending practices transformed residential segregation in metropolitan Detroit.

As Detroit expanded neighboring suburban communities developed discriminatory practices to prevent people of color and/or lower social classes from purchasing homes in upper class white neighborhoods. The Supreme Court ruling *Shelley v. Kraemer* in 1948 found racially restrictive covenants unconstitutional, and prompted self-enforcement and emergence of neighborhood specific discrimination policies (McKenzie 1994). Unenforceable restrictive

covenants remained on property records emblemizing established "Caucasian only" neighborhoods, and signaled retaliation risks to lenders and real estate agents who violated them (Sugrue 2014). Other neighborhood segregation policies were more elaborate and extended the FHA's discriminatory lending policies. The Grosse Pointe point system demonstrates neighborhood commitments to segregation and a growing divide between Detroit and newly developed suburban communities. The Grosse Pointe point system was devised by the Grosse Pointe Brokers Association in 1945 and practiced for eighteen years, three years after Michigan courts illegalized its practice (Maraniss 2015). The Grosse Pointe Brokers Association retained private investigators to research potential homebuyers who were rated by a secret three-member panel and scored on their appearance, country of origin, education, occupation, wealth, and how "American" their lifestyles were perceived (Maraniss 2015). The system refused to score potential homebuyers who were Asian, Black, or Mexican, and required higher scores for Jews than Greeks and Italians, who required higher scores than Poles and other Eastern Europeans (Maraniss 2015). Detroit's suburban communities developed residential personas indicating distinct social distancing from Detroit.

The communities of Madison Heights, Lincoln Park, Taylor, and Warren were blue-collar suburbs where developers constructed small working-class homes similar to Detroit models (Sugrue 2014). Middle-class communities of Dearborn Heights, Livonia, and Royal Oak housed middle management residents (Sugrue 2014). Corporate elites resided in prestigious Bloomfield Hills, Birmingham, Grosse Pointe, and Franklin suburbs (Sugrue 2014; Maraniss 2015). Government support federally and/or locally shaped and maintained Detroit's segregated suburban communities (Binelli 2012; Martelle 2012; Le Duff 2013; Sugrue 2014). Suburban development created political fragmentation that stripped tax revenue from the city of Detroit.

Each suburban community formed individual municipalities and collected local taxes to provide exclusive public services and amenities for residents (Sugrue 2014). This next subsection examines implications from Detroit's transitions and residential governance structures on amenities and public services.

Amenities and Public Services in Detroit

Declining tax revenue resulted in lower quality and/or disappearing amenities and public services across Detroit. Residents have experienced consequences of governance failure locally despite regional, state, and federal participation. Brueckner, Thisse, and Zenou's (1999) comparative study examined differences between Paris's and Detroit's central cities and suburbs. Paris's central city attracted wealthy residents and is rich with amenities, while its suburbs house lower class residents and offers few amenities. Detroit's central city and suburbs display the opposite of Paris, with suburbs rich in amenities housing wealthy residents, while the central city offers few amenities and houses predominately low-income residents. They discuss Paris's strong central government and Detroit's decentralized government as contributing factors to stark differences between each city's center and suburban characteristics. Central governments were said to heavily invest resources to city development and maintenance as a public good, opposed to decentralized government structures that allow resources to flow away from cities. Harvey (2003) describes Paris' urban transformation from a social-historical geography perspective illustrating how cultural, economic, political, social, and spatial forces are interrelated and competitive.

Vojnovic and Darden (2013) discuss Michigan's decentralization, particularly environmental and social consequences of decentralization and suburbanization in the Metro Detroit region. They identify economic, social, and technological, drivers of suburbanization, such as rapid population growth, increasing incomes, social and racial tension, abundance of low cost property, and single-family home preferences. They also identify public policies that facilitate decentralization and suburbanization through outward rather than upward expansion. First, policies designed around public sector investment and subsidies for infrastructure to develop suburban spaces. The federal government encouraged Detroit's industrial decentralization through military defense contracts and offered subsidies to construct new factories in suburban locations (Sugrue 2014). Second, public policies investing in private rather than public transportation, Detroit's roadway experiments between 1909-14 paved the way for the 1916 Federal Road Aid Act in 1916 and the 1921 Federal Highway Act, with Detroit leading roadway design and innovation (Martelle 2012). Third, FHA mortgage guaranties and subsidies enabled single-family home production by developers and encouraged consumers to purchase in the suburbs (Hayden 2003; Vojnovic and Darden 2013; Sugrue 2014). Detroit's population decline amidst suburban development exemplifies a shift toward suburbanization. Decentralization enabled local government to emerge through political fragmentation across emerging suburban communities. Political fragmentation allows suburban communities to form separate jurisdictions with localized tax revenues, amenities, and infrastructure responsibilities (McLeod 2011).

Decentralization has consequences beyond the dispersal of people and businesses from urban centers, property taxes that sustain urban infrastructure and provide amenities also diminish (Vojnovic 2009). Detroit's 139 square mile geography and aging infrastructure

requires a healthy tax base to function and provide additional amenities to residents. Between 1990 and 2000 Detroit's property tax assessments decreased by $147,128,606 (Vojnovic 2009). During the 2008-2009 financial crisis and subsequent recession unpaid property taxes skyrocketed in 2013 $504,387,629 was owed in overdue taxes and penalties on properties not subject to foreclosure (Detroit Blight Removal Task Force Plan 2014). Tax foreclosures occur when residents fail to pay property taxes for three years, and between 2009 and 2013 70,552 Detroit properties were in tax foreclosure, resulting in $744,759,006 in lost property taxes after auction sales (Detroit Blight Removal Task Force Plan 2014). In 2009 *Time Magazine* featured a special report "The Tragedy of Detroit," detailing how Detroit's treasury reported balances $3M less than the funds required to provide minimum municipal services, and that its public school system was in receivership (Okrent 2009). The same year more than 11,000 untested rape kits were discovered abandoned in a Detroit police department storage facility, with some kits dating back thirty years (Egan 2015; Martindale 2016). Detroit's public schools were among the worst in the country, the police department crime lab was shut down after failing a state audit, and an estimated 90,000 buildings were abandoned (Binelli 2012). Detroit is no longer revered for modern amenities that birthed its moniker "The Paris of the West," its world-class water system, railways, and schools no longer provide world renowned innovation or technology.

Detroit's expansive water and sewer system was designed and engineered to support a growing population and massive manufacturing industry (Martelle 2012). Infrastructure for water and sewer service requires routine maintenance in addition to standard operating costs. Growing urban areas benefit from lower water and sewer service rates because costs are dispersed between larger numbers of customers (Butts and Gasteyer 2011). As Detroit's population declined its utility infrastructure did not, leaving fewer residents responsible to

support system costs. In 2013 over 90,000 Detroit residents owed $90.3 million in over due water bills, and between March and July 2013 12,5000 households experienced water shut-offs for delinquent payments (Clark 2014; Dolan 2014). Thousands of utility shut-offs by October 2014 prompted United Nations representatives to visit Detroit, and advocate for the human rights of residents left without access to water (Badger 2014). Detroit's average monthly water bill was almost double the national average in 2014 (Clark 2014).

Detroit offered public transportation in 1862 with the introduction of streetcars enabling residents to live farther away from factories (Martelle 2012). Railroads emerged as a dominant form of mass transit and by 1884 Michigan Central Railroad Depot was built at Third and Jefferson in downtown Detroit (Austin and Doerr 2012). By 1893 Detroit's business leaders partnered with major railroads to construct the exquisite Union Depot a block north at Third and Fort streets (Austin 2012). Detroit's rapid industry and population growth increased railroad business and by 1913 Michigan Central Railroad constructed a landmark railroad station in southwest Detroit near its newly constructed underwater tunnel (Austin and Doerr 2012). Michigan Central Station is the epitome of stately elegance with its grand three-story train depot, constructed with marble floors, decorated with bronze chandeliers, ceilings reaching over fifty-four feet, and sixty-eight foot Corinthian columns aside its forty-foot front windows, and complimented by its mammoth eighteen-story office tower adorning similar luxuries (Austin and Doerr 2012). When railroad travel peaked in the U.S. at the beginning of World War I more than two hundred trains would depart Michigan Central Station each day, in 1945 its passenger trains carried about 4,000 daily passengers, and its office tower employed more than 3,000 workers (Austin and Doerr 2012). Outward expansion toward suburban communities and the ease, convenience, and consumer preference for private automobile travel eventually forced Detroit's

once prominent railroad companies out of business. By the late 1950's Michigan Central Station was only transporting about 1,000 daily passengers, with travel by car and airplane surpassing railway convenience (Austin and Doerr 2012). In 1971 the Union Depot closed and the federal government created Amtrak, which absorbed control of Michigan Central Station and eventually closed in 1988 (Austin and Doerr 2012; Binelli 2012). Detroit has lacked a reliable mass transit system since the railway closure and has become geographically isolated (Martelle 2012; Stiglitz 2013).

In addition to lacking reliable public transportation, Detroit's public safety amenities faced inadequacy. Functioning streetlights grew scarce and became normalized for Detroiters who reported large portions of the city were without working streetlights and the lighting department was unable to make repairs (Binelli 2012). In 2013 an estimated 40% of Detroit's 88,000 streetlights were not working, many had been vandalized by scrappers for copper parts (Reindl 2015). Unlit streetlights were not the only public safety concern, 20% of Detroit's fire stations were closed due to insufficient funds (LeDuff 2013). Detroit has a long history arson crimes, recording 810 in 1984, 354 in 1994, and 169 in 2010 within three days of Halloween alone (Terry, Kozlowski, and Ferretti 2016). Decreasing fire safety services in a city with a history with arson fires creates heightened safety concerns. Firefighters have also experienced undo risks from insufficient funding, forcing firefighters to use aging and defective equipment, which resulted in the 2008 death of Detroit firefighter Walt Harris whose homing alarm failed to sound (LeDuff 2013). Public service inadequacies extend beyond public safety services.

Diminishing public services and tax revenues have been attributed to poor government leadership, while governance structures roles in Detroit's decline have garnered little attention. Restrictive covenants, neighborhood associations, and HOAs were instituted to govern and

maintain residential segregation (McKenzie 1994; Sugrue 2014). These governance structures were transformed and embedded in suburban development through PPPs. Suburban development PPPs created segregated, socially distanced communities that provide suburban residents with exclusive public services and amenities by creating a smaller local tax base (McLeod 2011). Detroit residents have experienced declining and disappearing public safety services and transportation, while suburban neighbors reserve exclusive rights to high quality services and amenities. Detroit residents increasingly experienced consequences from formal and informal practices governing suburban development and Detroit's economic and social transformations but were excluded from developing solutions. Detroit's development, demographic and urban change, and governance differs from that of neighboring suburban communities. Next, I move to a discussion of Troy, Michigan, a suburban community located north of Detroit.

METROPOLITAN SUBURB TROY

The historically contentious relationship between Detroit and its surrounding suburbs exemplifies distinctly different outcomes under similar development circumstances and provides an opportunity for research. Both Detroit and Troy have been considered economic centers, have diverse residents, and are the largest geographically in their respective counties. As noted above, Troy quickly became the Detroit regions second largest employer in 2000, while employment in Detroit declined. Governance has helped shape each city's economic and social development. This section details the history of Troy, Michigan, beginning with its settlement and founding to its development and urbanization.

Troy, Michigan is a Detroit suburb located approximately eight miles north of Detroit in neighboring Oakland County. Troy and Detroit's histories are deeply intertwined yet display drastically differing outcomes despite enduring many similar experiences throughout development. This section examines Troy's development, urbanization, and its unique relationship with Detroit. Detroit and its northern suburbs in neighboring Oakland County exhibit a particularly contentious relationship rooted in processes of rapid development, population and urban change, and the structures governing such changes. Troy's relationship with Detroit characterizes the strenuous relations between Detroit and its neighboring cities in suburban Oakland County. The following subsection provides a detailed account of Troy's settlement and incorporation.

Development in Troy

Troy and Detroit share similar development histories both heavily influenced by the opening of the Erie Canal. Campbell (2004) of the Troy Historical Society details Troy's history in her work, *Troy: A City from the Corners*. Troy was first settled in the early 1820's by farmer Johnson Niles, who named the area Troy Corners after his hometown. The opening of the Erie Canal in 1825 led farmers to settle in Troy Corners, which became Troy Township with its first election in 1827. Niles was an active figure in political decisions throughout Troy's early development, serving as Troy's first postmaster, advised settlers, built an inn and trade post, and formed a development partnership with the Bank of Michigan in Detroit. Niles partnership with the Bank of Michigan led to the development of a sixteen block, 290 lot, platted subdivision in 1838, named Hastings after Bank of Michigan President Eurotas P. Hastings, who financed much

of Troy Corners development (Campbell 2004; Michigan Licensing and Regulatory Affairs 2016). Niles political involvement was not limited to serving Troy Township; he was a leader of the Democratic Party, County Justice of the Peace, County Commissioner, a member of the Freemasonry society, elected a representative in the first state legislature after Michigan achieved statehood in 1837, and later served as a Michigan senator (Campbell 2004).

Troy's economic development was stunted by the 1837 financial crisis, and railroad development from Detroit to Pontiac that bypassed Troy Corners and ran through Royal Oak. Troy's population declined and remained a commercially undeveloped rural farming community through the end of the Second World War. Nile's Hastings subdivision exemplifies Troy's decline with only sixty residents living in the Hastings subdivision in 1870. Detroit's United Railway expansion reached Troy in 1899, enabling goods and passenger travel from Detroit to Flint by trolley until 1931. Farming was Troy Township's primary source of economic activity, and garnered a regional reputation for exceptional corn, dairy products, fruit, wheat, and wool (Campbell 2004). Foreclosures during the depression forced some farmers to forfeit their land, creating space for new developments that would spur a major economic and social transition in Troy. Gravel mining became a source of economic activity in Troy during WWII to support increased demand for masonry sand required to build factories supporting the war. After WWII ended automotive supply corporations built manufacturing plants in Troy's southern sections. In 1955 a division of Sperry Rand Corporation called Vickers Incorporated proposed construction of an office and engineering facility estimated to cost $2 million (Campbell 2004). Rapidly expanding residential development and fierce competition for Vickers Incorporated's proposed facility between Troy and neighboring suburbs incentivized Troy to formally incorporate and

define city boarders. Expanding residential development and Troy's motivation to formally incorporate as a chartered city is discussed in the following subsection.

Residential Development and Formal Incorporation

Decentralized expansion from war manufacturing increased suburban development while concealing industrial manufacturing facilities supporting war efforts (Sugrue 2014). Upper class elites, who could afford automobiles, had been relocating to less-populated suburban communities prior to industry decentralization (Binelli 2012; Sugrue 2014; Maraniss 2015). Suburban industry investment remained after WWII and government supported development programs stimulated suburban residential development (Binelli 2012; Sugrue 2014). Residential developers began purchasing Troy's farmland left vacant and/or foreclosed from the depression's economic hardships to subdivide and build residential neighborhoods (Campbell 2004). Increased residential development created a need for suburban communities to define their municipal control over geographic space. Neighboring communities had slowly begun to formally incorporate into cities defining separate geographic spaces and municipal boundaries. Troy Township was reduced geographically where it borders Birmingham, Bloomfield Hills, Clawson, and Royal Oak who annexed Troy's bordering land in their city charters (Campbell 2004). Royal Oak (1921) (City of Royal Oak 2017) southwest of Troy incorporated first, followed by Bloomfield Hills (1932) (City of Bloomfield Hills 2017) on Troy's western border, Birmingham (1933) (City of Birmingham 2017) on Troy's southwest border, Clawson (1940) (City of Clawson 2017) on Troy's southern middle border, and Madison Heights (1955) (City of

Madison Heights 2017) on Troy southeastern border. Troy's largest incentive to formally incorporate came in 1955 when the township's deal with the Sperry Rand Corporation was threatened. The Sperry Rand Corporation and the City of Royal Oak were planning to annex the land for their planned facility, a process that would have provided the corporation access to Royal Oak's municipal water, sewer, police, and fire services. Troy Township launched a secret campaign and successfully incorporated on December 12, 1955, before Royal Oak could annex the proposed facility's land (Campbell 2004). Neighboring communities surrounding Troy continued to formally incorporate with Sterling Heights (1968) (City of Sterling Heights 2017) on Troy's eastern border, and Rochester Hills (1984) (City of Rochester Hills 2017) on Troy's northern border. When cities formally incorporate the geographic boundaries they create define individualized government jurisdictions with local taxation powers and exclusive amenities and services for residents (MacLeod 2011). As Troy and its neighboring communities defined their respective city boundaries several transitions occurred solidifying Troy's distinct social characteristics, which are detailed in the following subsection.

Economic and Social Transformation in Troy

Several transitions followed Troy's incorporation starting with the addition of a major freeway. Interstate Seventy-five (I-75) was expanded through Troy between 1961 and 1963, and the following year Troy transitioned away from individual household water and sewer systems to providing municipal water and sewer services from the Detroit Metropolitan Water Department (Campbell 2004). Troy's economic development increased dramatically after WWII exemplified by architect Minoru Yamasaki, architect of the World Trade Center, opening offices in 1963, construction of the Oakland Mall along I-75 in 1968, development of the Upscale Somerset Mall

in 1969, construction of the Kmart World Headquarters in 1972, and construction of the fourteen-story Somerset Inn in 1973 (Campbell 2004). The City of Troy has undergone a major transition from a rural farming community to thriving metropolitan global city. Troy's Economic Development Office (2017) reports that 6,100 businesses operate in the city employing 125,000 people. Today Troy houses the world headquarters of Menitor and Kelly Services, both fortune five hundred companies (City of Troy 2017). Troy is Michigan's financial Services hub housing the headquarters of Flagstar and Talmer banks and regional operations facilities for PNC Bank, Bank of America, and Huntington Bank (City of Troy 2017). Economic activity in Troy is diverse ranging from engineering, financial services, human resources, manufacturing, retail, and technology (City of Troy 2017). Rapid transformations were not limited to Troy's expanding economy, rapid social transformation was also evident.

Troy's reputation as a rural farming community was replaced amidst new upscale developments such as the Somerset Collection Mall. The Somerset Collection, which was renovated and expanded twice by 1996, and constructed approximately six miles northwest of Troy's former landmark Oakland Mall, symbolizes the stratified nature of its surrounding communities. The upscale mall containing 1.5 million square feet of retail space is divided into a north collection, housing primarily high-end retail brands, and a south collection, housing primarily elite luxury retail brands. Somerset's north and south collections are divided by Big Beaver Road, and bridged by a completely enclosed skywalk (Duggan 2012). Housing exclusively high-end and luxury brands eliminated competition between Somerset and nearby Oakland Mall, which houses primarily middle-market and discount retailers. Sears, a middle-market retailer, has been a flagship store at the Oakland Mall since opening in 1968 (Campbell 2004). The Forbes Company, which owns Somerset attributes success to prohibiting lease

agreements with middle-market and discount retailers such as Target and Sears (Duggan 2012). The Oakland Mall and Somerset Collection's spatial and social distinction exudes stratification and social distancing exhibited across Troy and its neighboring cities.

Similar to the social and spatial contrast between the Oakland and Somerset malls, Troy's surrounding cities emanate differing and distinct social character. Cities on Troy's western and northern borders share particularly affluent characteristics. Bloomfield Hills, Troy's northwestern neighbor, boasts consistently ranking among the nations top-five wealthiest cities over a thousand households, with a median household income of $165,000 dollars reported in 2010, and 30.9% of homes valued over $1 million dollars (City of Bloomfield Hills 2017). Birmingham, Troy's southwestern neighbor, recorded an average selling price for single-family homes of $393,117 dollars in 2013 (City of Birmingham 2017), and a median household income of $108,135 dollars in 2015 (U.S. Census Bureau 2017). Rochester Hills, on Troy's northern border, recorded a median household income of $82,112 dollars in 2015, and median owner occupied housing unit values of $230,100 dollars between 2011 and 2015 (U.S. Census Bureau 2017). Cities on Troy's east and southern borders share primarily middle and working-class characteristics. Sterling Heights, bordering Troy to the east, reported a 2015 median household income of $60,089 dollars, and median owner occupied housing unit values of $147,700 dollars between 2011 and 2015 (U.S. Census Bureau 2017). Madison Heights, southeast of Troy, reported a 2015 median household income of $41,206 dollars, and median owner occupied housing unit values of $79,700 dollars between 2011 and 2015 (U.S. Census Bureau 2017). Clawson, southwest of Troy, reported a 2015 median household income of $56,395 dollars, and median owner occupied housing unit values of $126,400 dollars between 2011 and 2015 (U.S. Census Bureau 2017).

The city of Troy separates the affluent cities on its west and northern borders and the middle and working class cities on its east and southern borders. Troy reported a median household income of $85,027 dollars in 2015 (U.S. Census Bureau 2017), and during the 2016 assessment year its 27,479 residential parcels averaged a market value of $279,570 dollars, while 874 homes sold during the 2015 calendar year averaging $324,820 dollars per sale (City of Troy 2017). The city's residential landscape is primarily single family homes developed through master-planned subdivisions (Michigan LARA 2016), typically proposed and funded by developers, approved by the city, and registered with the state. As economic reliance on farming declined farmland was transformed into subdivisions (Campbell 2004). Many subdivisions have since been redeveloped to increase square footage, lot size, or for commercial use. Pembrook Manor a high-density subdivision of 1,145 lots platted in 1926 was almost entirely demolished for commercial development and now houses Somerset Mall's South Collection (Michigan LARA 2016). Troy's population transitioned from a community of rural farmers, predominately of European descent, to Michigan's second most diverse city with residents reportedly speaking 83 different languages (City of Troy 2017). Troy successfully transitioned economically and socially throughout its development enabling Troy to overcome challenges from a changing economy, population, and political restructuring.

Stark contrasts between Troy and Detroit's economic and social transitions personify the enormous social distance between the two cities despite their close geographic proximity. Detroit's development established a foundation of social segregation that was institutionalized through industrial influence on life outside the factory. Restrictive covenants were designed to legally enforce social segregation residentially, and eventually transitioned into neighborhood associations and HOAs once fair housing laws were established to combat segregation practices.

Troy's development occurred long after Detroit was developed, but social structures, such as institutionalized residential segregation, influenced development practices. Subdivision designs and an abundance of HOAs and non-existence of voluntary neighborhood associations, which are discussed further in chapter four, evidence Detroit's social influences on Troy's development. Detroit and Troy's development histories contextualize the need to examine governance commodification across urban and suburban landscapes, as differences between Detroit and Troy may be linked to governance. Chapter three provides a theoretical approach to understanding governance as a commodity and how commodity governance can shape a community's environmental and social characteristics.

CHAPTER THREE: TOWARDS A THEORY OF GOVERNANCE COMMODIFICATION AND ITS AFFECTS

Existing literature on governance encompasses several disciplinary and theoretical perspectives, but is disjointed and difficult to operationalize. Stoker's (1998) framework provides a structural approach to differentiate governance from government and highlights issues of accountability and responsibility. However consequences that may arise from issues of accountability and responsibility are minimized without a discussion of social justice or access to participate. Legal thought divides public and private life into separate domains that continually redefines social experience as law is practiced (Freeman and Mensch 1987; Singer 2014). Legal scholarship focuses on understanding and defining laws as disputes arise, but consequently its reactive nature and imperfect logic create practical limitations that can ignore justice and equality. Sociological perspectives can examine implications of social structures, practices, and experiences on social justice and equality without practical limitations.

I seek to develop a sociological understanding of governance commodification and its effects by examining how governance structures are developed, practiced, and shape residential environments. This chapter will first acknowledge governance as an institution where power and authority are derived through public and private means. Next, governance commodification is introduced to better explain the social experience of governance transformation. Then the roles of governance in structuring U.S. communities through development and shared governance are discussed. I introduce a growing market for governance commodification and identify potential issues for excluded citizens and the public good. Finally, chapter three concludes with a discussion of complications for researching residential governance commodification and summarizing research hypotheses.

Stoker (1998) defined governance as creating conditions for ordered rule and collective action that are not limited to actors and institutions defined by government. An ability to create conditions for ordered rule and collective action implies that governance actors and institutions have both power and authority. Power is the capacity of a person, group, or institution to manipulate or shape the views or actions of others; while authority refers to a set of institutions, or institutional arrangements from which power is exerted, and deemed socially acceptable by securing legitimacy (Orum and Dale 2009). Ideologically, governing capacity is not confined to a single social structure to exercise authority, but rather blurs distinction between the public and private. Distinction between the social structures defined by Freeman and Mensch (1987) as public and private are essential to experiencing American culture. They contend that the public-private distinction is the foundation of American legal thought, and understanding the public and private as separate social domains informs daily experiences and shapes the culture's normative behavior. State authority is derived from citizens' surrender of their individual liberties and acceptance of institutionalized rule through law (Rose 2007; Orum and Dale 2009). Law is an elaborate system of rules, or a rational-legal foundation, formally defining and legitimizing how authority can be exercised (Orum and Dale 2009). In essence laws define terms of a culturally specific social contract between citizens and states shaping how they experience society, and inherently links legal and sociological thought. Society's public domain is constituted of government institutions responsible to serve and protect the public interest, while the private domain is a protected autonomous space of individual self-interest (Freeman and Mensch 1987; Rosenfeld 2013).

Literature examining the public-private distinction utilizes sociological perspectives either directly (Freeman and Mensch 1987; Harvey 1989; Jessop 2002; Fraser, Bazuin, &

Hornberger 2015) or indirectly (Stoker 1998; Cashin 2001; Knill and Lehmkuhl 2002; Thomas 2012), while drawing distinctions between rights of private property ownership and citizenship and/or tensions between collective and individual rationalities. In this next subsection I employ the notion of governance commodification as a framework to better understand the roles governance plays in structuring U.S. communities. Theorizing governance as a commodity creates a mobile, flexible understanding of the various public-private partnerships governing global society and controlling governing capacity. Understanding governance as a commodity allows existing and/or developing social relations to define its social character globally without geographical or state limitations found in previous literature.

Governance Commodification

Governance commodification is distinct from previous governance theories and occurs when governing capacity is flexibly produced and consumed, universally recognizable, blurs boundaries between the public and private, and reinforces class stratification while gaining exchange value. In short, governance is a commodity when governing capacity can be created and controlled by individuals for their exclusive benefit and those benefits have exchange value. Commodity governance is difficult to identify, challenge, and/or oppose because it blurs boundaries between society's collective understanding of the public and private domains. My definition begins to explain how governance can create differing outcomes under similar circumstances without limiting interactions to those of domination or harmonization but allows governance to create socially stratified distinction. To understand governance commodification from American capitalist perspectives, I draw on a Marxist definition of commodification.

According to Marx, commodification is the process of creating a product of production and consumption that is universally recognizable, and transforming use-value into exchange value. Existing social relations define the social character of commodities, wherein the consumer's use-value drastically differs from that of the producer, and reinforces class stratification as commodities gain exchange value through markets (Marx 1981).

Applying Marx's definition, commodification of governance can be broken into two parts. First, a form of governance with a particular use-value must be created. Scholarly consensus refers to governance as the development of public-private partnerships where the boundaries between government and governance become blurred (Stoker 1998). Developing public-private partnerships is the neoliberal process that balances coercion and consent while relying on legitimacy to assert use-value. I believe this transition is the linchpin of commodification, as governance becomes a universally recognizable and socially accepted product with a multitude of uses. Second, relations to production and consumption generate exchange-value and define a commodity's social character. Governance organizations flexibly produce and consume governing capacity to reinforce class stratification while gaining exchange-value. When development of governance organizations becomes consistent, recognizable, and generates exchange-value through the flexible production and consumption of governing capacity while adorning markers of social relations governance can then be thought of as a commodity.

Governance organizations are unavoidable today in a world divided by geographically based government jurisdictions. The need for governance organizations created space for governance commodification, where governing relations are flexibly produced and consumed. Governance organizations must be flexibly produced to serve varying functions across both local

and global landscapes. From global financial governance institutions, such as the World Bank and International Monetary Fund (IMF), governing global credit and currency; global trade organizations, such as the WTO and GATT, governing global trade (McMichael 2012); global crisis management organizations, such as Crisis Management Initiative and the International Crisis Group, governing crisis and security around the world (Mittelman 2010); to governance of local crisis and/or emergencies, such as Emergency Financial Management (EMF), who are non-elected officials appointed to perform local government functions during financial emergency situations (State of Michigan Legislative Council 2016); and local governance organizations, such as CID's and HOA's, governing restrictive covenants for neighborhood construction and maintenance (McKenzie 1994). Commodity governance, or when governing capacity gains exchange value, can become problematic for the public good as some citizens will have access and others will not. In this sense commodity governance can increase social polarization across class stratification systems serving to differentiate people by access to commodity governance.

Class stratification is reinforced through governance organizations both globally and locally. Since commodity governance is flexibly produced to serve various functions and comprised of a variety of social relations, similar governance organizations can produce different outcomes. David Harvey (2009) explains a similar phenomenon found in the urban political economy of the housing market, where a group's economic and political power can influence external benefits and costs. In this sense commodity governance can create socially stratified distinction without domination or exclusive authority. Governance organizations are comprised of unelected officials, proceedings are often only accessible to members making participation limited, and evades democratic process (McMichael 2008). The flexible and varying nature of commodity governance combined with the ability to limit participation and evade democracy can

alter the expectations, experience, and practice of citizenship. This next subsection examines how governance commodification alters the expectations, experience, and practice of citizenship through citizens' relationship with government.

Social Experience of Governance Commodification

Commodity governance demonstrates a remarkable transformation to experiencing society's public and private domains. Freeman and Mensch (1987) differentiate between society's public and private domains. Traditionally, society's public domain is comprised of government institutions responsible to serve and protect public interests and is accountable to private citizens through democratic processes. The private domain is an autonomous space for self-interest free from the encroachment of others. As noted above the social distinction between society's public and private domains is normalized and institutionalized through society's understanding and experiences with public and private law (Freeman and Mensch 1987). Primarily, individuals experience public law as a vertical relationship between government and citizens, and private law as a horizontal relationship between citizens (Rosenfeld 2013). The public and private domains derive significance from their ability to inform and shape the social experience (Freeman and Mensch 1987; Orum and Dale 2009; Rosenfeld 2013). Societal expectations are formed from social experiences; citizens can expect government institutions to protect public interests when laws are enforced and accountability is maintained. Individual and group behaviors are shaped by knowledge and experience of social consequences (Orum and Dale 2009). The public and private domains are differentiated by separate standards enforced by law; differing legal descriptions alone do not shape social experience.

Processes of privatization create spaces where governance can become commodified. By necessitating governance through public-private partnerships privatization created a market for commodity governance extending beyond neoliberal explanations of governance that rely on legitimacy. Periods of economic expansion and downturn often experienced concurrently with privatization normalized societal expectations and acceptance for governance through public-private partnerships (Harvey 2005). Governance through public-private partnerships alters the structure of relations between government and citizens recognized by law blurring normative distinction between society's public and private domains.

Commodity governance blurs the distinction between the public and private, as the legal experience of society's vertical and horizontal relationships no longer represent the traditional divide between public accountability and private self-interest. Governance recognizes the ability of public and private actors to control governing capacity (Stoker 1998; Knill and Lehmkuhl 2002), but commodity governance perspective recognizes that governing relations are flexibly produced and roles for public and private actors can vary dramatically. Since commodity governance emerges through the flexible production and consumption of public-private partnerships, the altered relationship structure between government and citizens varies. As markets for commodity governance expand a blurred public-private distinction and its associated social relations become embedded in the social structures that emerge.

Neoliberal governance obscured boundaries between the private and public domains and normalized authority of non-state actors changing patterns of social relations (Sassen 2007; McMichael 2008, 2012). The successful acceptance of neoliberal governance created space for public-private governance relations to expand. Governance expanded beyond traditional needs to manage relations between or beyond jurisdictions toward governing special interests, such as

environmental concerns and/or defining human rights, and managing access to resources and networks (McMichael 2012). Since governance operates in spaces that are not entirely public or private citizens are not guaranteed access to participate or demand change.

The emergence of private actors gaining governing power evades democratic process and creates competition for governing capacity between government and private governing actors (Stoker 1998; Knill and Lehmkuhl 2002). Such competition can transform governance into a commodity subject to negotiations between private actors and/or institutions and democratic government. The altered relationship structure between government and citizens decreases the need for legitimacy, as citizens and government no longer recognize a clear distinction between society's public and private domains. Flexible production and consumption of commodity governance creates varying legal interpretations of the numerous emerging public-private relations produced and significantly decreases accountability. Decreasing needs for legitimacy and accountability creates an environment where preferential policymaking can be normalized and uncontested. Often times preferential policy making results in one-sided gains and risks thus expanding polarization and occurs in spaces where citizens lack access to demand change (Kantor 2010). This notion of commodity governance relies on the relationship between governance and capitalism; this next subsection examines governance commodification as a capitalistic process.

Governance Commodification as a Capitalistic Process

This dissertation examines the roles of governance commodification in structuring U.S. communities and explores, describes, and explains commodity governance expansion through

HOA governance. Harvey (1978) provided a deeper understanding of urbanization processes by utilizing capitalism as a contextual framework. HOA governance emerged alongside urban growth and expansion (McKenzie 1994; Hayden 2003), enabling Harvey's conceptual framework to provide a deeper understanding of governance commodification as capitalistic process. Additionally, governance commodification can clarify how collective investment decisions appear consensual and can differ drastically between neighborhoods. Three phases or circuits of capital are outlined in Harvey's framework.

The first phase he calls "the primary circuit of capital," and focuses primarily on processes of production. The primary circuit of capital in terms of governance commodification is the production of the HOA neighborhood, where covenants and restrictions are designed detailing how the neighborhood will be physically and politically designed. The secondary circuit of capital deals with response to over accumulation by investment in the built environment (Harvey 1978). HOA neighborhoods invest in the secondary circuit of capital in numerous ways and vary across neighborhoods. Investments by HOA neighborhoods in the built environment, or the secondary circuit of capital, include but are not limited to budgeting, constructing, and maintaining common areas such as parks, playgrounds, golf courses, pools, trails, access gates, walls, and security services, etc. Fraser et. al. (2015) identified lawn maintenance standards in HOA neighborhoods as instigators of greater commitments to lawn aesthetics through care, maintenance, and increased fertilizer use. Lastly, the tertiary circuit of capital includes long-term investments that improve production and aid development of class identity, and its social reproduction (Harvey 1978). HOA neighborhoods invest in the tertiary circuit of capital through participating in HOA networks, local politics, and lobbying for services. HOAs can participate in network organizations, such as the Communities Association

Institute (CAI) which is an international membership organization focusing on professionalizing HOA governance, that provide education, seminars, workshops, and advocate for common interest community governance (McKenzie 1994, 2005; CAI Website 2016). Participating in HOA networks can help leaders develop effective governing strategies and form alliances with other HOA neighborhoods. HOA neighborhoods can campaign for or oppose local budget, and/or land use plans (Fraser et. al. 2015). HOA neighborhoods and networks can leverage their alliances to lobby for zoning and/or public service provisions that benefit or bolster their social standing.

Applying Harvey's (1978) framework to governance commodification allows issues he identifies to be addressed. First, when commodified governance takes shape as HOA governed neighborhoods a market forms and values must be cemented through production and invested in the built environment. The production of commodified governance produces the HOA and neighborhood's political and physical design which have value but not in a concrete material form. Values are cemented during consumption, when consumers agree to pay fixed prices for lots, building construction costs, and HOA assessments. The second issue raised is that the secondary and tertiary circuits produce commodities that are difficult to price (Harvey 1978). Amenities, maintenance standards, and networking opportunities cannot be assigned fixed values. For instance, two HOA neighborhoods can provide a swimming pool for residents, but the size, neighborhood location, and swimming pool maintenance can vary dramatically altering the value. Understanding that investments in secondary and tertiary circuits may vary in value when compared directly highlights a need to identify patterns, and make relative comparisons. The final issue contends that individual behaviors are not reflections of entire social classes (Harvey 1978). Flexible production of commodity governance, particularly as HOA governance,

demonstrates that groups can create varying degrees of distinction. Additionally, commodity governance may encourage individuals to participate in spatial practices to maintain neighborhood value despite lacking intrinsic motivation (Fraser et. al. 2015). A market for commodity governance exists and has expanded from bridging gaps across jurisdictions; this next subsection discusses the growing market for commodity governance.

The Expanding Market of Governance Commodification

Demand for commodity governance continues to grow but has yet to be examined as a market. Next governance commodification is examined as an expanding market and capitalistic process. A principle characteristic of capitalist markets is periods of rapid expansion (Harvey 2009; MacLeod 2011), and the market for governance commodification is no exception. Scholars across academia have taken various approaches to understanding the emergence and expansion of governance. Governance no longer focuses on bridging gaps in territorial jurisdictions, governance has transformed and expanded from utility to value driven production. Governance is a commodity that is flexibly produced and has expanded exponentially controlling governing capacity globally and locally. Governance commodification has expanded at the global level by increasing forms and developing specializations. Specifically, governance over global trade expanded from ideals of bridging gaps in jurisdictions and harmonizing regulations (WTO) to governing specialized entities of trade such as agriculture (AoA), services (GATT), and technologies (TRIPS) (McMichael 2012). Locally, governance commodification has demonstrated similar expansion patterns, however; production exhibits greater flexibility and increased specialization locally. For instance, governance commodification in urban

development appears to demonstrate similar expansion patterns, as public-private partnerships between municipalities and development corporations expanded beyond restrictive covenants and zoning into specialized CIDs and HOAs that can tailor restrictions to satisfy particular groups of residents (McKenzie 1994; McCabe 2011).

Commodity governance has become embedded in the social experience, altering basic conceptions of what is "public" and/or "private" and who regulates the ability to manipulate either. From global economic interactions to local residential development, the freedom to shape one's experience through advantage seemingly has greater protection than the freedom from being subjected to resulting disadvantages. Governance has been shown to shape development practices and exclude those without access to participate (McKenzie 1994; MacLeod 2011; McMichael 2012). The ability to exclude citizen participation for exclusive benefits evades democracy and has raised questions regarding the existence of post-democratic cities (MacLeod 2011). Utilizing commodity governance provides a tool to bridge scholarship and examine the affects of commodity governance on the urban landscape.

I adopt commodity governance as a tool for identifying and understanding how benefits and consequences of governance practices are unevenly dispersed. Previous approaches depict governance as a partnership between government and private actors, where governing capacity is shared (Stoker 1998). The emergence of local governance entities highlights persistent dilemmas rooted in the struggle between private rights and public obligation. Local goods and services vary by municipality since the emergence of CICs, HOAs, and PPPs, which can provide public goods and services beyond and in excess of government. In addition to providing varying degrees of public goods and services, PPPs, CICs, and HOAs can create racially and economically homogenous environments, and restrict owner's use of private property (McKenzie

1994; Blakely and Snyder 1997; Cashin 2001; McKenzie 2005; McCabe 2011; Thomas 2012). The ability to determine public service provisions, provide amenities, restrict property use, and create social distance does guarantee commodity governance will affect communities equally or at all. In this next section, I move to a discussion on the roles of governance in shaping U.S. communities.

ROLES OF GOVERNANCE IN SHAPING U.S. COMMUNITIES

Marx' notion of political economy, or the relationship between the economy and politics, provided a structural approach to understand governance, but does not directly translate to urban development relations. Harvey (1973-2009) combined geographical and sociological perspectives to demonstrate capitalisms profound influence on urban space geographically and socially. He applies market principles to urban development strategies demonstrating that urban development is a capitalistic process where social characteristics (economic and political power) can shape geography and its value. Governance commodification further explains this capitalistic process by detailing how social characteristics are used to gain governing capacity and shape geography and values. Harvey contends that the housing market can be manipulated through spatial and social organization where groups can territorialize space to maximize property values in specific locations. Governance organizations such as neighborhood associations and/or HOAs have been found to territorialize space (Blakely and Snyder 1997; McKenzie 2005) and shape property values (Meltzer and Cheung 2014). Consequently economic and political power determines the ability to manipulate residential development and maximize values, excluding those without means to participate. Therefore, my first hypothesis is

that characteristics of association governance, household income, education level, and race will display similar spatial patterns (H1). Next, I move to a discussion of how urban development practices utilize commodity governance to shape spaces benefitting those with the means to participate.

Development

Development relationships between private developers and transit owners and public governments normalized shared governing capacity between public and private actors. Once normalized and shown effective for maximizing values shared governing relations are flexibly produced for urban development. Harvey (1989) also applied political economic principles to describe transformations in urban governance as a shift from a managerial to entrepreneurial practice. Globalization forced municipalities to compete for industry investment and created space for private actors to gain governing capacity through negotiations. Partnerships between government and private entities reduced government's regulatory capabilities and increased capitalistic interests. Normalizing entrepreneurial urban governance characterized linkages between private property ownership and economic and political participation. Linkages were displayed through uneven and unequal development and disparities in services and amenities between municipalities (MacLeod 2011). Entrepreneurial urban governance allowed political fragmentation, unplanned sprawl, and marginalized spaces between city centers and their suburbs (Vojnovic 2009; MacLeod 2011).

Zukin (1987) and MacLeod (2011) highlight trends in governance organizations obtaining institutional control over built environments during suburban development and urban

gentrification, where access to governing capacity is limited. CIDs and HOAs replaced traditional neighborhoods where homes were built by individuals on public roads and access to standardized public services, with master-planned residential subdivisions designed with restrictions, managed governance, and varying public services and amenities (MacLeod 2011). Master-planned developments are designed to create distinctly different spatial territories, and the uniform nature of developments masks exclusionary tactics. Developments cater to specific lifestyles and classes creating a "spatial governmentality" where homebuyer choices are limited by economic means, and their willingness to adhere to regulations (MacLeod 2011). Governance organizations called development authorities shape development and redevelopment efforts toward class based consumption resulting in social and spatial differentiation (Zukin 1987; Macleod 2011). Therefore, my second hypothesis is that association governance, educational attainment, and race effect household income (H2) and hypothesis three is that those effects vary when examined by spatial location (H3). Governance led design strategies shape the built environment to attract and exclude specific groups by providing separate experiences. Next I discuss how shared governance enables developers to shape public space into exclusive territorialized spaces.

Shared Governance

Shared governing capacity blurs boundaries between the public and private, by linking the private with economic and political participation. Subsequently the public good becomes subject to relations of shared governing capacity, and represents exclusive rather than collective interests. There is literary consensus acknowledging a relationship between increasing wealth

and income disparities among geographically distinct groups (Harvey 1989; Kantor 2010; MacLeod 2011). Social and economic polarization demonstrates unequal distributions of benefits and consequences when private interests gain governing capacity. Ideologically society's public domain has two primary responsibilities, controlling and regulating government institutions that serve public interests, and protecting a greater public good from private interests (Freeman and Mensch 1987). When governing capacity is shared, private interests become embedded in governance decisions and the public good cannot be adequately protected.

Utilizing a commodity governance framework provides a deeper understanding of the roles governance plays in structuring U.S. communities. For instance, in CID and/or HOA governed communities developers and local governments can shape property development to attract and benefit specific populations, while granting them governing capacity upon ownership. In this sense governing capacity is contracted during development and purchased with ownership. As CID and/or HOA governance becomes more prevalent, governing capacity and its associated benefits become related to CID and/or HOA membership. From a commodity governance perspective, several problems exist with CID and/or HOA governance: (1) the ability to attract and benefit specific populations is also the ability to exclude specific segments of the population from benefits; (2) linking governing capacity to ownership normalizes an individuals ability to purchase governing capacity; (3) CID and/or HOA governance can informally promote unequal benefits and risks distorting society's understanding of citizenship and public goods. Literary consensus notes increasing inequalities and greater polarity between classes when reliance on governance structures increases (Harvey 1989, 2010; McKenzie 1994; Cashin 2001; MacLeod 2011).

The ability to attract and benefit specific populations is also the ability to exclude specific segments of the population from benefits. Until the Supreme Court outlawed the practice of racial discrimination in 1948, restrictive covenants were used by developers to exclude African-Americans, Asians, Jews, and other racial minorities from buying or renting homes in specific neighborhoods or community developments (McKenzie 1994; Hayden 2003). Homeowners associations were the governing bodies used to enforce discriminatory practices for decades, with the encouragement of the Federal Housing Administration, which believed discriminatory practices maximized property values (McKenzie 1994). Communities and neighborhood developments can offer exclusive amenities for residents, such as community pools, libraries, premier schools, parks, and playgrounds, etc. (Logan and Molotch 2007). Since access to amenities and resources is based on homeownership or residency status non-residents can be excluded creating a link between governing capacity and ownership. An individual's ability to purchase governing capacity is normalized when governing capacity and ownership are linked. Neighborhoods can impose restrictions on land use limiting owners from subdividing their property into smaller parcels, and/or regulate maintenance standards to provide particular aesthetics (Logan and Molotch 2007). HOA governed communities can create enclaves of affluence by constructing walls or fences distancing homeowners geographically and socially from others (Heyden 2003; Logan and Molotch 2007).

CID and/or HOA governance can informally promote unequal benefits and risks distorting society's understanding of citizenship and public goods. Citizenship is a social contract between citizens and government detailing a condition of civic equality, social cooperation, participation, political association, and equal rights to enjoy collective goods (Cashin 2001; Bellamy 2008). CID and/or HOA communities have historically been

economically and racially homogenous (McKenzie 1994; Blakely and Snyder 1997; Cashin 2001), and have utilized political fragmentation to provide varying degrees of amenities and public services (MacLeod 2011). Utilizing commodity governance to structure neighborhoods and/or communities of neighborhoods has been theorized as a way to negate discrimination laws and maintain advantage by securing high property values and avoiding school segregation (Blakely and Snyder 1997). Communities comprised predominately of CID and/or HOA neighborhoods are likely to provide better quality public services. CID and HOA neighborhoods are responsible for the cost and maintenance of private streets and connections to municipal utilities etc. in addition to paying local property taxes resulting in a type of double taxation (McKenzie 2005). Mike Davis (1992, 2007) describes how the emergence and increasing forms and use of non-elected governance structures to manage cities and suburbs has created distinctly different spaces between urban cities and suburbs acting to redistribute discriminatory practices. If governance can redistribute discriminatory practices and allow citizens to segregate public goods then the ability to commodify governance alters the experience of citizenship. Therefore, my fourth hypothesis is that association governance will vary with population characteristics and form distinct spaces (H4).

Residential Governance and Researching Governance Commodification

Residential private governance has been said to exceed neoliberalism by exhibiting stark variation and ambiguity (McGuirk and Dowling 2009). Innovations in the production of urban space and the increase and variance in privately governed neighborhoods highlights a growing transformation in urban politics (McKenzie 1994; Blakely and Snyder 1997; McKenzie 2005; McCabe 2011). Fraser, Bazuin, and Hornberger (2015) focus particular attention to the

participation of private actors and entities shaping the domain of citizenship through residential private governance. They examine how HOAs directly assert power over homeowners, through CC&R regulations, and indirectly govern through the sociospatial production of commoditized landscapes. Their work explains how various forms of direct and indirect residential private governance creates an ongoing process of developing "neighborhood citizens" who actively shape global capitalist investment through their participation. My notion of governance commodification extends previous research by developing an understanding of how legitimacy and accountability have decreased thus exceeding previous neoliberal explanations of governance. Class commitments and preferential policy-making is not exclusively tied to individual power but how individuals and groups can commodify governing capacity through public-private partnerships. In this sense governance is not limited to relationships of domination or harmonization but highlights socially stratified distinction.

Operationalizing governance commodification adequately requires a research design that can examine its social processes and spatial form. Harvey (2009) refers to approaches relating urban social processes and the spatial forms they assume as bridging the geographical and sociological imaginations. He contends that social organizations, institutions, and individuals are affected by spaces they function within or are separated by. I theorize that governance commodification can help explain how governance can result in differing outcomes despite similar circumstances, and creates socially stratified distinction. Commodity governance is offered as a tool for identifying and understanding how benefits and consequences are unevenly dispersed. This dissertation's research design combines demographic and spatial analysis to examine effects of HOA governance on population characteristics.

I contend that HOA governance exemplifies commodity governance and dramatic increases in HOA governed communities' demands further investigation. Interdisciplinary consensus suggests that HOA's form enclaves distinct from surrounding neighborhoods (McKenzie 1994; Cashin 2001; Hayden 2003; Ben-Joseph 2004; McCabe 2011; Fraser, Bazuin, & Hornberger 2015). Such a consensus requires examining both the social processes and spatial forms of HOAs and subdivision development. Observational and block-level analysis has driven the academic consensus surrounding HOA's (Cashin 2001; Hayden 2003; Ben-Joseph 2004; McCabe 2011; Fraser, Bazuin, & Hornberger 2015). Understanding observed distinctions between HOA and non-HOA governed neighborhoods requires HOA's to be examined utilizing methodologies capable of relating their social processes and spatial forms across multiple neighborhoods. The research design of this dissertation will extend previous research of HOA governance by combining geographic and demographic methodologies to empirically examine HOA governance across two cities in Metropolitan Detroit.

Governance commodification's public-private nature is difficult to research due to inherent ambiguities and limited regulation and reporting standards. The public nature of governance leadership is reported through contracts and public records; however, involvement of private actors and/or investments requires limited reporting and varies across partnerships. Governance commodification is flexibly produced to benefit private investors, but particular relationships benefit from registration in public records. HOAs in Michigan receive tax exemptions and litigation protection by registering as non-profit organizations with the state's Licensing and Regulatory Affairs (LARA) department (Michigan Act 162 of 1982). Non-profit registration information in LARA is public record and can be gathered systematically for any

HOA ever registered in Michigan. HOA governance can be compared systematically across cities using public records data.

Development outcomes between Detroit and its neighboring suburban communities have differed drastically with research identifying governance policies as influential (Vojnovic and Darden 2013; Sugrue 2014). Empirically, governance organizations have not been systematically identified and researched at the city level. This dissertation examines governance commodification by analyzing census data for Detroit and its neighboring suburb Troy. Decennial census population data, state subdivisions, and HOA data will be used to identify if governance organizations provide a skewed benefit to any particular segment of the population. Analyzing changes in variables such as income, education, and race over time between Detroit and Troy will comprehensively examine how governance organizations affect each space.

Empirical studies on the affects of governance organizations have been limited by readily available data to operationalize governance organizations into a unit of analysis. McCabe (2011) insists that HOA's contain a wealth of untapped experimental knowledge on differences between privatized and non-privatized communities. Some research has compared privatized and non-privatized neighborhoods by surveying residents but has focused broadly on issues of residential segregation, safety, and residential service disparities (McKenzie 1994; Blakely and Snyder 1997; Ben-Joseph 2004). Comparison studies of HOA and traditional neighborhoods have only compared neighborhoods, and have not examined the incidence or change over time of HOAs within an entire city compared to another. Nor have studies compared population change to HOA incidence and/or examined possible spatial patterns.

My main research questions are what spatial relationships exist between association governance and social class? What affects does association governance have on social class

location in Detroit and Troy? What relationships exist between association governance and distinct population characteristics? I address these research questions by examining four hypotheses: hypothesis one, is that characteristics of association governance, household income, education level, and race will display similar spatial patterns; hypothesis two is that association governance, educational attainment, and race affect household income; hypothesis three is that those affects vary when examined by spatial location; and hypothesis four is that association governance will vary with population characteristics and form distinct spaces. Analyzing the effects of governance commodification through HOA's facilitates an in-depth understanding of governance and is worthy of sociological inquiry because governance commodification side-steps democracy while possibly creating and defending inequality. Literature suggests using HOA data to operationalize governance organizations can provide a wealth of knowledge, but has highlighted difficulty obtaining HOA data from local property records (McKenzie 2005; McCabe 2011). Utilizing HOAs as a unit of analysis to represent governance organizations allows this dissertation to operationalize governance in a new and informative way. Dramatic increases in HOA governed communities provide data to identify demographic change and spatial patterns. Chapter four explains this dissertation's research design, data collection methods, research methodology, and research hypotheses.

CHAPTER FOUR: RESEARCH DESIGN, DATA, METHODS, AND RESEARCH HYPOTHESES

This dissertation employs a comparative design to examine effects of governance associations in two Michigan cities, Detroit and Troy, from neighboring counties, Wayne and Oakland. Detroit and Troy are the largest cities in their respective counties, industry centers, and approximately eight miles apart. Research on metropolitan Detroit has noted trends in population change, urban decentralization, racial composition, and political fragmentation (Vojnovic and Darden 2013; LeDuff 2013), but none have empirically examined the transformation of neighborhood associations and emergence of HOA governance. The absence of readily available data on neighborhood associations and HOAs has limited empirical research examining citywide effects of association governance (McCabe 2011). Growing disparities between Detroit and suburban neighborhoods suggests further research could benefit current residents and future development planning.

Metropolitan Detroit has changed dramatically from leading the U.S. industrial revolution, to suffering great impact from globalization, and among the hardest affected by the Great Recession (LeDuff 2013; Stiglitz 2013). However, Detroit and its surrounding suburbs have been affected differently by such change. Detroit's decline in population and industry investment has been noted since the 1950's along with increased population and industry investment in neighboring suburbs (Binelli 2012; Martelle 2012; Stiglitz 2013; Vojnovic and Darden 2013). Table 1 displays demographic information for Detroit and neighboring suburb Troy from the 2010 and 2013 U.S. Census. Many notable disparities are evident, particularly in median household income (Detroit $26,325 and Troy $ 85,685) and percentage of the population living below poverty (Detroit 39.3 and Troy 7.2).

Table 1: Troy and Detroit Census Data 2010-2013		
	Troy	Detroit
Land Area (sq. Mi.)	33.47	138.75
Persons/sq. Mi.	2,419.30	5,144.30
% high school grads	94	77.6
% Foreign Born	27.2	5.1
Racial Composition 2010 Census		
%Asian	19.1	1.1
% Black	4	82.7
% Hispanic	2.1	6.8
% White	72.7	10.6
Median Household Income (USD)	85,685	26,325
% persons below Poverty	7.2	39.3
Median Value of Owner Occupied Housing Units (USD)	219,200	50,400
Home Ownership Rate (%)	74.9	51.9
Population		
2010	80,980	713,862
2013	82,821	688,701
% change	2	-3.50

Chapter four will first discuss the data used for analysis and collection methods used to obtain the data. Then, I summarize research hypotheses being investigated followed by an explanation of how association governance and census data is represented by variables and how those variables are measured. Next, I introduce spatial data and explain how spatial data is used in this analysis followed by an in depth explanation of areal interpolation methodology which enables association and census data to be analyzed together. Finally, I discuss how exploratory spatial analysis, ordinary least squares and geographically weighted regression analyses, and grouping analysis are used to investigate my hypotheses. This next subsection describes the data and collection methods used to address this dissertations main research questions relative to Detroit and Troy.

Data and Collection Methods

Currently no specialized database exists to identify and/or monitor HOAs at the national or local level. HOAs designated as non-or not-for-profit tax-exempt organizations must register with the State of Michigan's Licensing and Regulatory Affairs Office's (LARA) corporations division. However, legislation does not require HOA's without tax-exempt status to register with the state, non-exempt HOA's may choose to register voluntarily. Michigan does not differentiate HOAs from any other business entity, whether designated profit, Limited Liability, non-profit or otherwise. All HOA and business entity information collected by the state is housed in a single massive database making data collection both difficult and time consuming. In 1873 the State of Michigan began compiling and maintaining data of all residential subdivision plats, or land divided for residential housing development across the state's eighty-three counties, previously housed only in each county's Register of Deeds Office (Michigan LARA 2017). Platted subdivisions refer to land that has been divided and those divisions are approved by the state and documented using charts, land surveys, and/or maps (Land Divisions Act 288 of 1967§ 560.102). LARA's subdivision database is not limited to residential subdivisions; all subdivided land is listed by geographic location, in alphabetical order, and does not allow filtering by land use. Platted subdivisions differ from HOAs but were used to systematically identify HOAs within the state database. Data for Detroit and Troy were collected separately and accommodated development differences. Data collection methods for Troy required fewer steps and are presented first.

I collected Platted residential subdivision and HOA data for Troy systematically using State of Michigan public records databases. State public records databases contain information

on land subdivided, split into smaller units of land, and HOAs, if registered with the state, that can be searched by location. First, a statewide search for platted subdivisions located all land subdivided within each city. Database search results are restrained by the state and limit the number of search results a user can view at one time to two hundred. Searches for platted subdivisions were performed in sections to negate database restraints.

The State of Michigan is divided into survey (or congressional) townships acting to divide geographic space into a standardized grid. Each survey township is a square unit of land covering approximately thirty-six square miles, where each square mile represents one section (Michigan Department of Technology Management and Budget 2014). The General Land Office (GLO) surveyed the division of land for the U.S. Public Land Survey System (PLSS) creating consistent survey areas for research. Practitioners also refer to the U.S. PLSS as the Rectangular Survey System and/or Town Range Survey System. Separate searches for platted subdivisions were conducted for each of Troy's thirty-six one-square mile city sections.

Search results identified records for all platted subdivisions within each city section, including land subdivided for commercial, eminent domain, government, industrial, multi-family, and single-family uses. Results were inspected to eliminate subdivisions not intended for single-family residential development. This process identified all platted residential single-family subdivisions (n= 423) by town range section in Troy and provided plat maps, record dates, and the number of lots subdivided (n= 26,836). This search returned results for residential subdivisions that have since been redeveloped, results were verified using plat maps and/or surveys and the city's online maps to triangulate results for accuracy.

After all single-family residential subdivisions were identified and recorded then a search for HOAs was conducted using the State of Michigan's Licensing and Regulatory Affairs

(LARA) business entity search by keyword. I then entered names of each single-family subdivision as keywords to search for corresponding HOA records. This search must be done individually for each single-family subdivision and often entailed searching for different variations of each subdivision name. This search process identified 210 HOA's in Troy. When an HOA was identified LARA's business entity records provided detailed information identifying when an HOA was incorporated (minimum 1949), a registered address and the HOA's purpose for each year an HOA registers, and the last year an HOA registered (maximum 2015). Knowing the first and last time an HOA was registered identifies how long an HOA has existed, and a basic activity level is inferred by how many years an HOA continues to register annually. Additionally, copies of an HOA's articles incorporation and annual registration forms are available through LARA, as well as plat maps from previous searches of platted subdivisions. Single-family subdivision and corresponding HOA data was verified for accuracy by comparing subdivision plat maps with registered HOA addresses. Results from both searches were compiled into a single Microsoft excel spreadsheet detailing each platted residential single-family subdivision and whether it has and/or has had an HOA registered with the state, year of incorporation and/or dissolution, and its geographic location by city-section.

Detroit's subdivision and HOA data required alternative collection methods due to development design differences between the two cities, and comparability of data from Troy and Detroit will be discussed later. Platted residential subdivisions in Troy are primarily "master planned" subdivisions, where the streets and sidewalks surrounding each lot are privately owned. Public streets, sidewalks, and alleyways connect the majority of Detroit's platted residential subdivisions; therefore, the street, sidewalk, and alleyway area cannot be considered as part of a subdivision. Additionally, Detroit subdivisions can include disjointed parcels that are not

consecutively connected spatially. Data collection in Detroit was accomplished at the parcel-level to accurately account for development design differences between Troy and Detroit.

Loveland Technologies (2015), a PPP working closely with Detroit's blight task force, provided public records data for each individual parcel in Detroit and included subdivision identifiers. Parcel data for only single-family subdivisions was selected and all other parcel data was eliminated (n=215,678). After isolating single-family subdivisions (n=3,735) searches for HOA data was conducted at the parcel-level. My extensive literature review indicated a distinct difference between how subdivisions and neighborhood associations were developed and formed in Detroit and Troy. Much of Detroit was developed prior to the normalization of HOA's and community-style "master planned" residential development practices. Land in Detroit was often developed and/or subdivided prior to the use of deed restrictions and/or CC&R's common to HOA governed neighborhoods. Neighborhoods in Detroit began forming neighborhood associations to serve purposes similar to HOAs, but membership is often voluntary and not always defined by platted subdivision. Neighborhood associations can be defined by street boundaries and can include portions of platted subdivisions. Governance data for Detroit was collected at the parcel-level and grouped by subdivision identifiers to account for membership defined by attributes other than subdivision names.

Searching for HOA data corresponding to Detroit's single-family subdivisions was also accomplished using LARA's business entity search database using keywords, but including additional steps to account for neighborhood associations. Additional keyword searches were added using street and neighborhood names to strengthen the ability to identify neighborhood associations not linked to subdivision names. Having acquired Detroit subdivision data by individual parcel enabled neighborhood associations and/or HOAs defined by street boundaries

to be recorded accurately. The search techniques described located 8,141 parcels having an HOA, and 32,122 parcels belonging to a neighborhood organization. Detroit's single-family subdivisions, corresponding HOAs, and neighborhood association data was also verified by comparing registered addresses with subdivision plat maps available in LARA. Data collected for Detroit and Troy isolates single-family subdivisions and residential governance structures specific to single-family residences. Subdivision and governance structure data was analyzed with population data for Detroit and Troy.

Population data was obtained from the U.S. Census Bureau Decennial public records by census tract for Detroit and Troy. The U.S. Census Bureau did not record decennial data comprehensively in Troy until 1960, and displays data inconsistencies until the 1980 decennial census. Population data for Detroit and Troy is comprised of decennial census records from 1980-2010. Population data analyzed identifies: (1) population counts, or the number of persons in each census tract for each year; (2) median household income, measured continuously by census tract for each year; and (3) educational attainment, measured using discrete counts denoting level of education achieved for persons twenty-five years of age and older by census tract decennially. Population data from the U.S. Census Bureau is comparable to subdivision and HOA data because the State of Michigan and the U.S. Census Bureau both collect data according to the U.S. PLSS. The following subsection describes variables and measures used for hypothesis testing.

Variables and Measures

Variables used for hypothesis testing are median household income operationalized as the dependent variable and association governance and population composition variables operationalized as independent variables. Median household income, the dependent variable, is measured continuously and consists of residents self-reported nominal income collected by the U.S. census from 1980-2010. Nominal income data was used due to data availability and consistency limitations across decennial census years. Association governance, the independent variable, is operationalized as the percentage of single-family residential subdivision area governed by an HOA and/or neighborhood association per square mile, and is measured continuously for each decennial census year from 1980-2010. Population composition, the independent variable, will be operationalized by race, measured as the sum of residents who self-identified racially as black, white, or other (any other race identified), and the percentage of residents by race per square mile each decennial census year from 1980-2010; educational attainment is operationalized as the highest level of education completed by residents aged twenty-five years and older, measured by the percentage of residents whose highest level of education is less than a high school diploma or its equivalent, the percentage of residents who have earned a high school diploma or its equivalent, the percentage of residents who have completed some college, and the percentage of residents who have earned a bachelors degree or higher. Summaries of the four hypotheses to be tested are discussed in the following subsection.

Hypotheses

Association governance in Detroit and Troy was primarily observed in two forms; neighborhood associations, which are typically voluntary associations formed after homes were constructed (Sugrue 2014), and HOAs, which are typically designed in the subdivision planning process and are involuntary associations bound by law (McCabe 2011). Association governance has been shown to divide social classes (Blakely and Snyder 1997; Sugrue 2014), and to increase property value (Meltzer and Cheung 2014). This dissertation incorporates spatial data analysis (discussed in detail in the following section) to connect the social processes of association governance to its spatial forms; therefore, hypothesis one is that characteristics of association governance, household income, education level, and race will display similar spatial patterns (H1). This dissertation's governance commodification framework asserts that governance can be commodified, but in order to consider governance a commodity its utility, or use-value, must transform into exchange value. If association governance divides social classes and increases property values then a relationship exists between association governance and socioeconomic class; therefore hypothesis two is that association governance, educational attainment, and race effects household income (H2) and hypothesis three is that those effects vary when examined by spatial location (H3).

Neighborhood associations aimed to preserve neighborhood homogeneity of class and race when population and minority populations increased (Sugrue 2014). HOA governance is said to attract particular social classes to common interest developments of their economic means (McKenzie 1994; MacLeod 2011). Associations have the ability to institute and enforce costly aesthetic, building, maintenance, and safety standards limiting residents by financial means

(McCabe 2011). Further association governance is said to create enclaves of affluence (McKenzie 1994), with unique neighborhood distinctions that encourage community citizenship (Fraser et al. 2015). This dissertations commodity governance framework accounts for the divisive nature of association governance by asserting that commodity governance is flexibly produced and consumed; therefore, hypothesis four is that association governance will vary with population characteristics and form distinct spaces (H4). This dissertation relies on spatial data to connect the social processes of governance commodification to its spatial forms. The following subsection briefly explains spatial data and how spatial data is used in this dissertation's analysis.

Spatial Data

Spatial data uses a mathematically based coordinate system to arrange variables geographically in their proper places and give variables measurable shapes, sizes, and locations (Ormsby et al. 2001). Additionally, spatial data and variable attributes can be linked to investigate spatial relationships between variables and their attributes, to identify common issues, and/or examine intersections between environmental and social factors (Ormsby et al. 2001; Steinberg and Steinberg 2006). Utilizing spatial data enables location to become a measurable variable for examining patterns typically unnoticed by models that control for spatial relationships (Clifford et al. 2016). This dissertation's governance commodification framework is predicated on the ability of governance to vary spatially; therefore, examining governance relationships should be accomplished through analyzing spatial data.

The Planning Department for the City of Troy amassed the city's spatial public records data for municipal planning and development purposes using Geographic Information Systems (GIS), and provided city spatial public records data. Spatial data provided by the planning department is formatted as ArcGIS shape files using exact geographic coordinates specific to Troy's features and boundaries and included town range survey system section boundaries, and single-family subdivision boundaries. Town range survey section boundaries and single-family subdivision boundaries form polygons representing each section and/or subdivision's shape, size, and location in Troy. Detroit single-family parcel data provided by Loveland Technologies included ArcGIS spatial data for individual parcels and was grouped by subdivision.

The State of Michigan's GIS Open Data system provides geographic data files for Michigan's survey townships, and sections consistent with the U.S. PLSS. Much of Detroit's urban landscape was developed prior to the development of the rectangular survey system, designed to create consistent survey areas. The State of Michigan open data system does have geographic data in rectangular survey system format for Detroit but it lacks grid-like aesthetic consistency with major roadways found in municipalities developed later. Comparatively Troy's development consistency is evident from its grid-shaped roadway system, which was constructed along town range section boundaries. Rectangular survey system data from the state was sorted to create a new shape file specific to Detroit's survey township section boundaries. Finally, U.S. decennial census contains spatial data for population, median household income, and educational attainment by census tract for 1980-2010.

Each population variable underwent a series of spatial joins to link census tract polygons for each year with all three variables and attributes. Census tracts can be split or merged when a population changes and spatial size can vary depending on population density (Census Bureau

2010). Known census tract variation creates measurement consistency issues geographically and over time. This research design employs areal interpolation methods to address measurement consistency issues caused by unit variation referred to as the Modifiable Areal Unit Problem (MAUP). When MAUP is ignored results can be plagued by ecological fallacies that do not accurately represent the data (Openshaw 1984). Areal interpolation allows spatial data to be normalized into units of analysis consistent in shape and size. Creating consistent spatial units of analysis avoids results flawed from scalar and/or shape issues known as MAUP. The following subsection briefly explains areal interpolation methodology and justifies its use in this research design.

Areal Interpolation

The malleable nature of census tract shapes and sizes creates MAUP issues. MAUP issues arise when spatial analyses of aggregated data produce different results from identical methodology (Dark and Bram 2007). MAUP can affect results when data aggregation differs in scale, by providing different perspectives even when analyzed the same way; or shape, when data is aggregated to the same unit size but differs in shape (Openshaw 1984). Census tracts vary by size and shape across decennial years, and are addressed using areal interpolation to prevent MAUP. Figures 1 and 2 display Detroit and Troy census tracts from 1980-2010, illustrating differences in size and design noted above. Since nominal income data is used income values are not directly comparable across census years and income will be compared categorically using natural value breaks.

Figure 1: Detroit Census Tracts 1980-2010

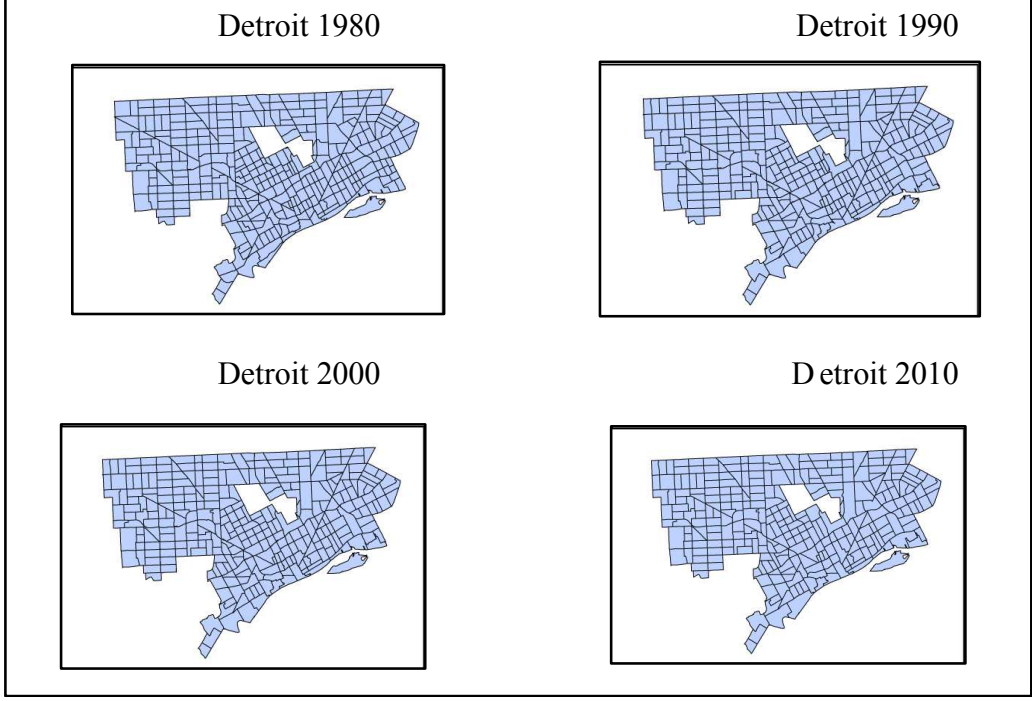
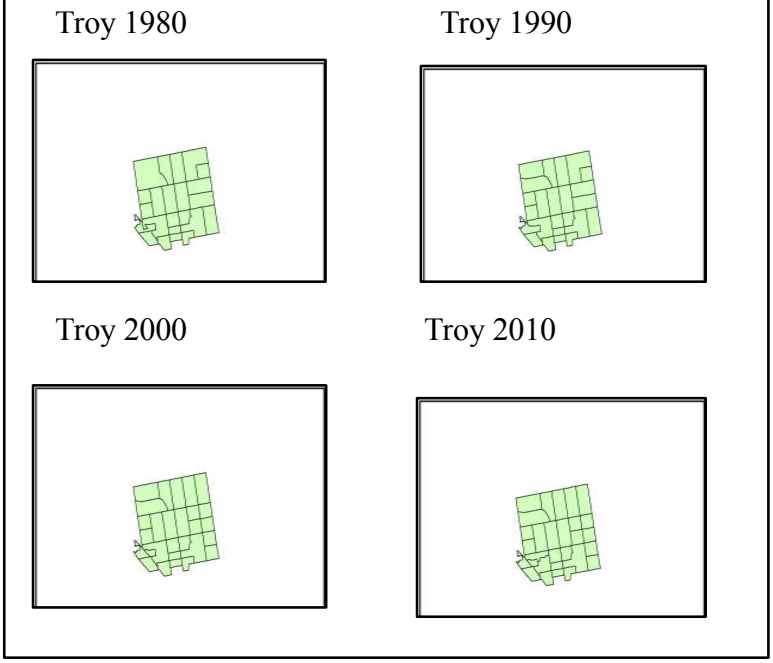


Figure 2: Troy Census Tracts 1980- 2010



Areal interpolation is a method used to disaggregate and re-aggregate data from one administrative unit to another while allocating data proportionally. Several areal interpolation

methods exist and vary in complexity. This analysis utilizes Area-Weighting Areal Interpolation methods for vector spatial data. Vector data is appropriate because this analysis examines relationships across the same geographic areas over time using polygons at fixed locations (Steinberg and Steinberg 2006). Area-weighting areal interpolation preserves the volume from source to target polygons using a straightforward algorithm (Qui, Zhang, and Zhou 2012). De Smith, Goodchild, and Longley (2015) explain areal interpolation using the following formula where the variable values of each spatial unit of analysis is approximated as:

$$\hat{X}_i = \sum_{j=1}^{N} W_{ij}\, X_j$$

Where $\hat{X}_i$ is the variable value of polygon j, and w_{ij} is the weight applied to polygon j for spatial unit i. The number N is determined by the unit sizes subject to interpolation, and then weights distribute a proportion of each polygons variable values to the desired unit using the following distance decay function:

$$w_{ij} = \left(\frac{d^2 - s_{ij}^2}{d^2 - s_{ij}^2}\right)^{\alpha}$$

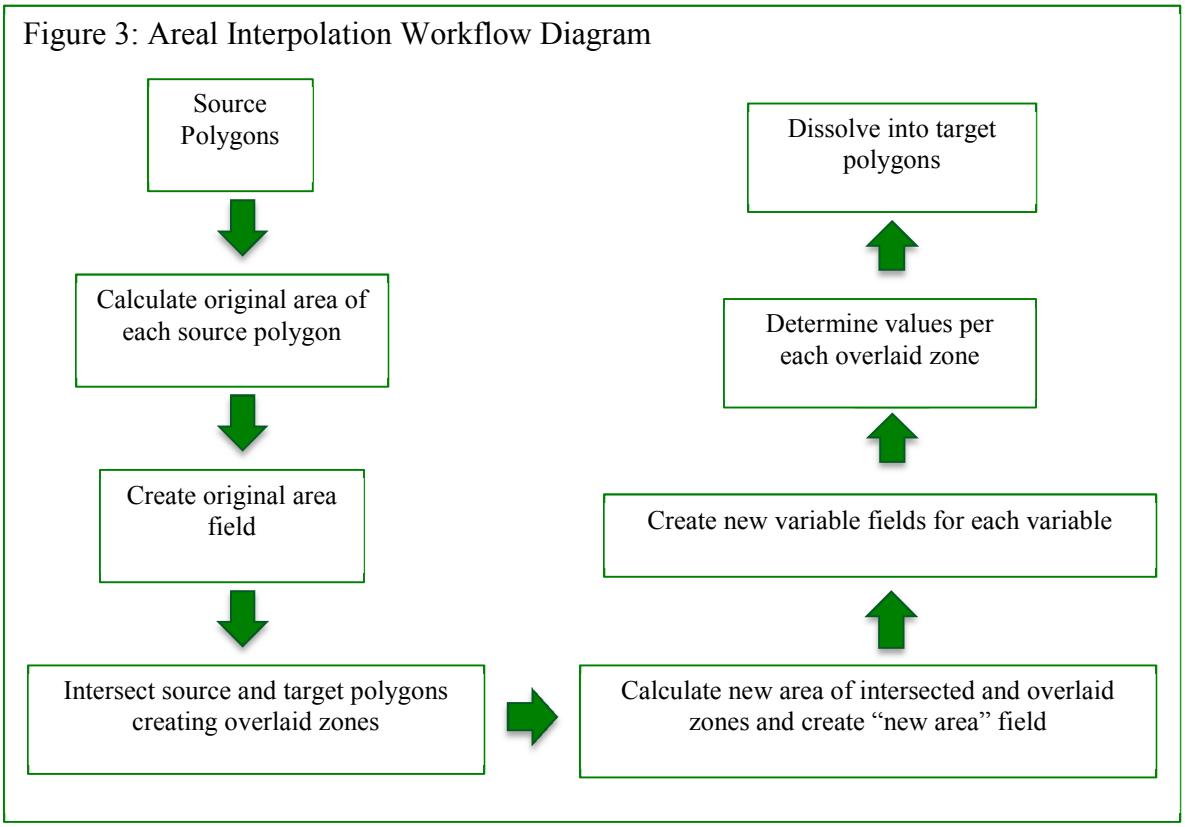
Where d is the average inter-polygon distance within the sampled area, and s_{ij} is the distance between polygon i and polygon j.

In this analysis source polygons are census tracts and target polygons are town-range survey sections approximately one square mile each. The following process describes the workflow used to perform areal interpolation, and was conducted using ArcGIS. First, the original area of each census tract polygon was calculated. Next the census tract polygons and survey section polygons were intersected. Then the new area of the intersected polygons was calculated. Next, new values of each variable across intersected polygons was determined using the field calculation function and the following formula:

New variable value = (New Area/ Original Area) x Original variable value.

Median income data does not represent exact counts and did not require using this field calculation. Finally, each intersected zone was dissolved, using the sum of each statistic field and the mean for median income, into survey section target polygons providing the interpolated values. The workflow diagram in Figure 3 illustrates how areal interpolation was implemented.

Figure 3: Areal Interpolation Workflow Diagram



Area-weighting areal interpolation assumes homogeneity, or evenly distributed variable values across source polygons. The homogeneity assumption can be problematic when variable density significantly differs from the source polygon average or when polygons vary significantly in size (Qiu et al. 2012). Using town-range survey system sections as target polygons creates equal geographic units of analysis that remain fixed over time at approximately

one square-mile unlike census tract, political township, and zip code boundaries that are sensitive to change and vary in shape and size. Utilizing section sizes approximately one square-mile as target polygons and area units of analysis minimizes possible ecological fallacies described by Openshaw (1984). Aggregating data from source polygons to similar sized target polygons requires minimal data manipulation, and enables examination of section-level phenomena defined by approximately one square-mile. Areal interpolation yielded 173 sections in Detroit and 36 sections in Troy. Each city's sections will remain geographically fixed across census years enabling changes in association governance, educational attainment, and race, to be accurately measured and compared. Having used nominal income data created an issue for directly comparing across census years and is accounted for by using natural breaks to create ordinal income categories ranging from the lowest to the highest natural income break. Figures 4 and 5 display Detroit and Troy city sections from 1980-2010, illustrating differences in size and design noted above. Descriptive statistics are provided in in Table 22 and 23 (see appendix) for each variable and decennial census year in Detroit and Troy after areal interpolation was performed.

Figure 4: Detroit Sections 1980-2010

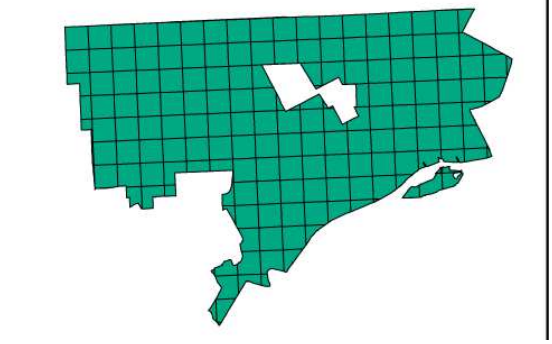
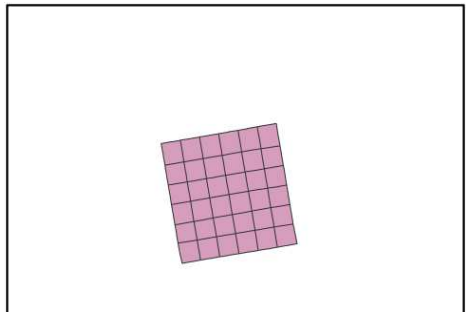


Figure 5: Troy Sections 1980-2010



Next, I move to a discussion on methodology used for hypothesis testing. Hypotheses will be tested using exploratory spatial data analysis to detect spatial autocorrelation and spatial patterns of variables (H1), Ordinary Least Squares (OLS) and Geographically Weighted Regression (GWR) models are used to global and local effects of association governance (H2 and H3), and grouping analysis to detect underlying spatial processes that may result when spatial units of analysis (i.e. one square mile sections) are comprised of variable attributes distinct from surrounding locations (H4).

Exploratory Spatial Data Analysis

Exploratory spatial data analysis is employed to identify spatial patterns for each variable, and is then used to develop a structured understanding of spatial relationships among variables. Hypothesis one, that association governance, household income, education level, and race will display similar spatial patterns, is tested using an exploratory method called Optimized Hot Spot Analysis performed for each variable across decennial census years. The null hypothesis for optimized hot spot analysis is Complete Spatial Randomness (CSR); therefore, statistically significant z-scores and p-values indicates that the data's spatial patterns are not likely random but rather caused by some underlying spatial process (Getis and Ord 1992; Ord and Getis 1995). Z-scores are standard deviations indicating how much a variable's values deviate from the mean at a particular location (i.e. city section). P-vales determine whether each z-score is statistically significant. Optimized hot spot analysis detects where variables cluster and the intensity of those clusters (Clifford et al. 2016).

Optimized hot spot analysis identifies the optimal fixed distance bandwidth (scale) for each variable and creates heat maps denoting cluster intensity. The bandwidth is a search radius used to detect locations of variable clusters, and the optimal bandwidth allows clusters to be detected at the variables highest intensity (Clifford et al. 2016). The optimized hot spot analysis tool in ArcGIS employs incremental spatial autocorrelation to identify the proper bandwidth, or scale of analysis. Incremental spatial autocorrelation strategy performs the Global Moran's I test for a series of increasing distances to determine the distance at which the z-score peaks, and the peak distance becomes the scale of analysis (ArcGIS Pro 2017). Spatial autocorrelation measures cluster dependency on observations in nearby polygons, by assuming that polygons near to each other will exhibit similar variable values (Clifford et al. 2016). Significant spatial autocorrelation using the Moran's I test compares dispersion to the average variable value among polygons using spatial weights. Neighboring polygons are weighted more heavily in determining spatial autocorrelation significance. ArcGIS is used to estimate the significance of spatial autocorrelation using the optimal fixed distance bandwidth identified by optimized hot spot analysis. Further this dissertation employs OLS and GWR models to test hypotheses two and three. The following subsection explains the difference between OLS and GWR and justifies application in this dissertation.

Ordinary Least Squares and Geographically Weighted Regression

Testing hypotheses two and three are accomplished by employing OLS and GWR models to examine global (H2) and local (H3) effects of association governance, educational attainment, and race on median household income. Ordinary Least Squares (OLS) regression attempts to explain the variation in the dependent variable by finding an optimal set of explanatory variables (Ogneva-Himmelberger et al. 2009; Clifford et al. 2016). OLS models assume data displays minimal spatial patterns and lose explanatory power when spatial relationships are significant (Clifford et al. 2016). Hypothesis two predicts that association governance, educational attainment, and race affect median household income and is tested globally using OLS regression models. OLS models explain variation in dependent variables only caused by explanatory variables across the entire prediction area and do not account for local explanatory power.

GWR models provide explanatory predictions at every known location and account for proximity by applying distance weights, or assuming that observations have greater effects when they are closer together (Clifford et al. 2016). Hypothesis three is that effects vary when examined by spatial location and is tested locally using GWR regressions to measure effects found in each city section. OLS and GWR analysis is performed using ArcGIS to examine effects of association governance, educational attainment, and race on median household income. When spatial relationships vary based on specific combinations of variable intensity additional analysis is required to identify relationships based on distinct characteristics. Next, grouping analysis is discussed as a means to detect distinct spatial relations based on specific combinations of variable intensity.

Grouping Analysis

Grouping analysis is used to identify spaces that share similar characteristics. Grouping analysis is used to test hypothesis four, that association governance will vary spatially with educational attainment, race, and household income characteristics forming distinct groups in each city (H4). Grouping is a partitional cluster analysis that identifies clusters or groups where attribute similarities are high within the group and low between groups without imposing a hierarchical structure (Jain 2010). In this sense grouping will identify unique enclaves within each city that share similar attributes of association governance, median household income, educational attainment, and race. Grouping analysis identifies locations where multiple variable attributes cluster spatially into groups sharing similar attributes, and does not require spatial constraints or continuity (Jain 2010; ArcGIS 2017). The grouping analysis tool will evaluate the optimal number of groups in the data specified by measuring group effectiveness using the pseudo F-statistic, a ratio reflecting within and between group differences (ArcGIS 2017). Grouping analysis compares summary statistics, mean, standard deviation, minimum, maximum, and R^2 values, of association governance, median household income, educational attainment, and race within each group to each other. Summary statistics for each group are also compared with global summary statistics. Next, chapter five explains results from hypothesis testing.

CHAPTER FIVE: GOVERNANCE AND HOMEOWNERS ASSOCIATIONS

Residential governance associations have been tools used by residents and local governments to appeal to common interests, provide additional amenities and services, decrease residential development costs, and shift infrastructure liability away from local governments (McKenzie 1994; Cashin 2001; McCabe 2011). Research has shown that residential governance associations can create homogenous neighborhoods (Cashin 2001), and that residential governance associations have monetary value, as residences with governance associations return higher value assessments than residences without associations (Meltzer and Cheung 2014). Literature presented extensively in chapters one, two, and three suggest residential governance associations benefit member residents, but exclude non-members. Detroit and Troy, Michigan are cities where residential governance associations have had a strong historical presence, but residential experiences have differed. Previous research has consistently found race and class based segregation between Detroit residents and residents of Detroit and neighboring suburbs (Farley, Bianchi, and Colasanto 1979; Darden and Kamel 2000; Vojnovic and Darden 2013). Sugrue (1996-2014) contends that residential governance associations helped institute and perpetuate race and class based segregation despite later legislation forbidding such practices.

Empirical research on residential governance associations has been limited by data accessibility and by developmental, structural, and spatial transformations observed across residential governance associations (McKenzie 1994; Cashin 2001; Ben-Joseph 2004; McCabe 2011). Association development has transformed from collectives of individual property owners with deed restrictions to contractual public-private partnerships prior to construction (Cashin 2001; Ben- Joseph 2004; Sugrue 2014). Associations have transformed structurally comprising

voluntary informal associations and involuntary formal associations governing both single and multi-family residences (Cashin 2001; Sugrue 2014). Residential governance associations have also transformed spatially becoming a prominent suburban residential development strategy governing each residence and their surrounding streets and common areas (Sugrue 2014; Fraser et al. 2015). Residential governance associations in Detroit and Troy embody development, structural, and spatial transformations along with transformations to the cities themselves. The research design described in chapter four was employed to examine the affects of residential governance associations in Detroit and Troy from 1980 to 2010.

This dissertation's results which examined affects of residential governance associations in Detroit and Troy will identify if residential governance associations are more commonly utilized by particular segments of the population and/or are geographically located in particular sections of each city between 1980 and 2010. This fifth chapter presents and contextualizes analysis results for each hypothesis predicted and explained in chapters three and four. Four hypotheses were investigated for Detroit and Troy from 1980-2010 and results will be presented in the following order: First, results from hypothesis one, which predicted that characteristics of residential governance associations, household income, education level, and race display similar spatial patterns, and was tested using optimized hot spot analysis are discussed. Second, results from hypothesis two, which predicted that association governance, educational attainment, and race affect household income, and was tested using ordinary least squares regression analysis are discussed. Third, results from hypothesis three, which predicted that affects of association governance, educational attainment, and race on household income vary by spatial location within each city, and was tested using geographically weighted regression analysis are discussed. Finally, results from hypothesis four, which predicted that characteristics of governance

associations, educational attainment, race, and household income would form distinct enclaves within each city, and was tested using grouping analysis to identify clusters of similar attributes, are discussed. Chapter five is divided into two main sections to explain results for Detroit and Troy, which were analyzed separately. Hypothesis tests were performed in ArcGIS10.4 spatial and statistical analysis software. Maps generated using ArcGIS are presented to allow spatial data results to be visualized locally for each section, approximately one square mile, in Detroit and Troy. The following section presents and contextualizes results from hypothesis tests performed on data from Detroit.

GOVERNANCE AND HOMEOWNER ASSOCIATIONS IN DETROIT

Optimized Hot Spot Analysis

Hypothesis one predicted that characteristics of association governance, household income, education level, and race would display similar spatial patterns. Simply, this first hypothesis predicts that association governance, household income, education level, and race will share similar patterns of cluster intensity across Detroit. Previous research indicated a history of race and class based segregation in Detroit that was reinforced by neighborhood associations and HOAs (Sugrue 2014). Testing this hypothesis will indicate if neighborhood associations and/or HOAs are clustered to a greater or lesser degree in any particular area of Detroit and if patterns of clustering are shared among variables. Additionally, research has shown that Detroit's affluent, highly educated white population fled the city during economic downturn (Okrent 2009; Stiglitz 2013; Sugrue 2014). Yet research on neighborhood associations

and HOAs claims that residential governance associations attract and retain upper class residents (McKenzie 1994; Sugrue 2014). Optimized hot spot findings will indicate if neighborhood associations and HOAs are clustered in the same city sections as high income, highly educated, and white residents. Results from this exploratory analysis help identify possible relationships between variables for further hypothesis testing.

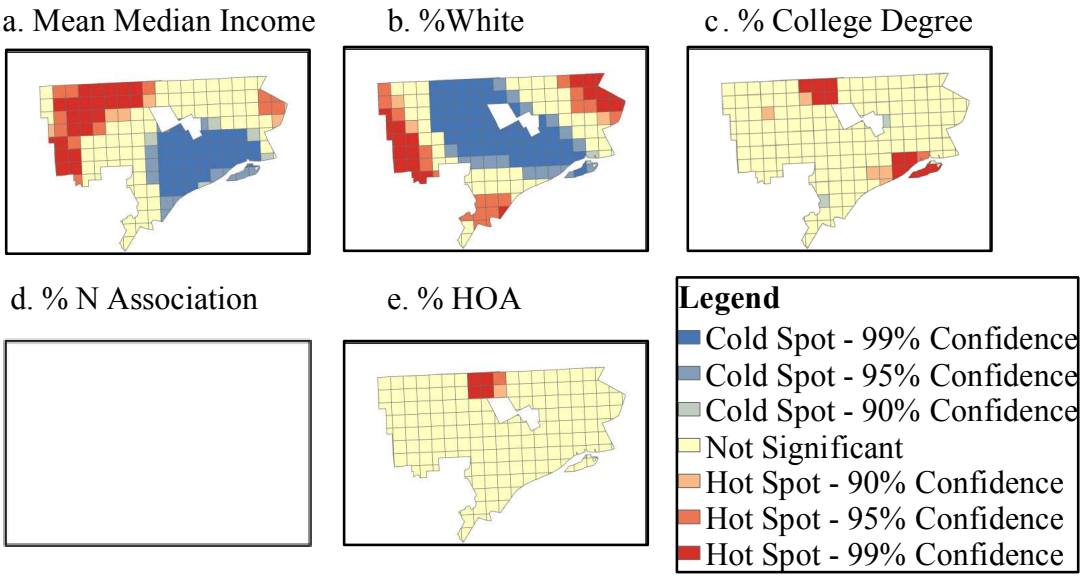
Hypothesis one was tested using the Optimized Hot Spot Analysis tool in ArcGIS10.4 spatial statistical analysis software. Optimized hot spots were identified for each variable from 1980-2010 separately. Optimized hot spot analysis uses z-scores to identify cluster intensity, or locations where a variable's values significantly deviate from the sample mean by one, two, or three standard deviations (Clifford et al. 2016). In this analysis a hot spot indicates a location (city section) where a variable's attributes are one, two, or three standard deviations above the city-wide mean, and a cold spot indicates locations where a variables attributes are 1.65, 1.96, or 2.58 standard deviations below the mean. Cluster intensity, or hot and cold spots, are supported by confidence intervals where 1.65 standard deviation above or below the mean falls within a 90% confidence interval, 1.96 standard deviations falls within a 95% confidence interval, and 2.58 standard deviations falls within a 99% confidence interval. Statistically significant high value clusters, or hot spots, and low value clusters, or cold spots, were identified and corrected for multiple testing and spatial dependence using the False Discovery Rate (FDR). Hot and cold spots ranging from 90-99% confidence intervals are identified and mapped by city section (approximately one square mile). This subsection explains optimized hot spot results where similar spatial patterns, cluster intensity, among variables were identified, and how these spatial patterns changed between 1980 and 2010.

Optimized hot spot findings presented for race represent the percentage of section population identifying as white, and findings presented for level of education represent the percentage of section population aged 25 years and older with a college degree as findings are consistent with this dissertation's extensive literature review of residential governance associations and Detroit's residential history detailed in the previous four chapters. Literature consistently acknowledged that Detroit's affluent white and highly educated populations were members of neighborhood associations and HOAs and fled city during suburban expansion (Martelle 2012; Stiglitz 2013; Vojnovic and Darden 2013; Sugrue 2014). Throughout this section figures 6-9 display hot and cold spots for median income, percentage of section population identifying racially as white (percent white), percentage of section aged 25 years and older having earned a college degree (percent college degree), percentage of area governed by a neighborhood association (percent neighborhood association), and percentage of area governed by an HOA (percent HOA) for decennial census years 1980-2010. At the end of this section figures 10-14 are presented to illustrate how hot and cold spots for each variable changed between 1980 and 2010.

Optimized hot spot results for Detroit in 1980 identified spatial patterns for median income, percent white, percent college degree, percent neighborhood association, and percent HOA, and indicated mutual statistically significant hot and cold spot sections. Figure 6 illustrates optimized hot and cold spots for each variable by Detroit city section. Hot spot sections, locations where a variables high values are clustered one, two, and/or three standard deviations above the mean, were shared at some locations for median income, percent white, percent college degree, percent neighborhood association, and percent HOA. Finding hot spot sections means that variable values are significantly higher (1.65, 1.96, and/or 2.58 standard

deviations higher) than average in hot spot sections. Additionally, finding high value clusters for one or more variables in the same section (or sections) suggests relationships may exist between variables and those variables may result from an underlying spatial process (Clifford et al. 2016). An underlying spatial process refers to some aspect of a location that may account for hot or cold spots that cannot be attributed to randomness (Clifford et al. 2016). For example, neighborhood associations have been found to promote neighborhood segregation by race and class in Detroit and are territorialized by street boundaries (Sugrue 2014). Further examining hot and cold spots by variable will help identify possible relationships and steer further hypothesis testing.

Figure 6: Detroit Optimized Hot Spot Analysis 1980



Median income displays the greatest number of mutually significant hot spot sections, sharing statistically significant hot spots with percent white, percent college degree, percent neighborhood association, and percent HOA. In other words, some sections of Detroit where residents have above average incomes also contain higher than average percentages of white residents, residents 25 years and older with a college degree, neighborhood associations, and HOAs. Median income, percent white, and percent college degree (one section) also share

statistically significant cold spots, or locations with low variable values. These cold spot findings indicate that some sections of Detroit where residents have lower than average median household incomes also contain lower than average percentages of white residents and one section with a lower than average percentage of residents 25 years and older with a college degree. These hot and cold spot patterns are consistent with literature on Detroit claiming residential governance associations are associated with residents who earn high incomes, are well educated, and are abundantly located in neighborhoods with predominately white residents (Martelle 2012; Surgue 2014). If these patterns are supported by a spatial relationship between these variables then neighborhood associations and HOAs could be used to separate residents by race and class.

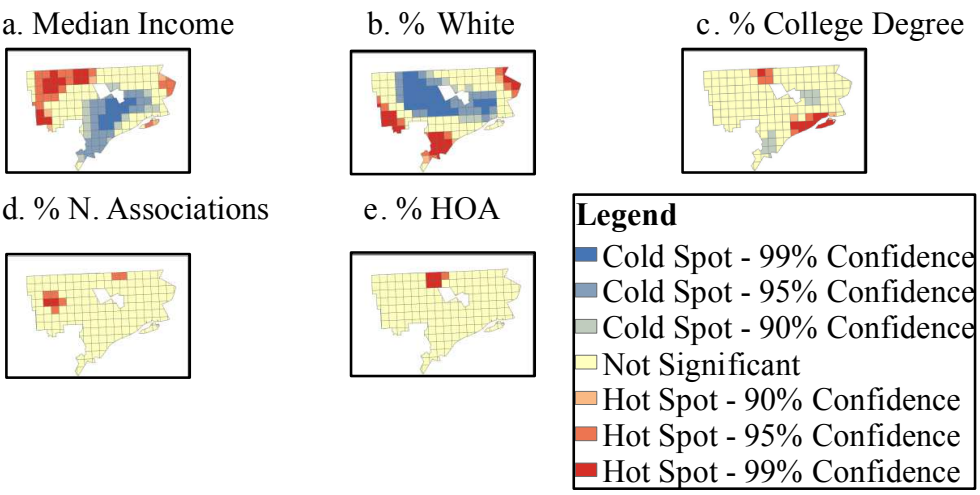
Less expected but interesting patterns were also found. Cold spot sections for percent white also overlapped with hot spot sections for median household income, percent college degree, percent neighborhood association, and percent HOA. This means that in 1980 some sections of Detroit where the percentage of white residents is lower than average the median household income, percentage of residents 25 years and older with a college degree, neighborhood associations, and HOAs is higher than average. Although these patterns were less expected they are consistent with Surgue's (2014) claims that association governance was used to create boundaries between social classes and races, and/or a growing non-white upper class. Results for percent neighborhood association and percent HOA governed did not return any cold spot sections, meaning that in 1980 not a single section of Detroit contained significantly lower than average percentages of neighborhood associations or HOAs. Not finding cold spot sections for neighborhood associations and HOAs is interesting and could mean that governance associations are located abundantly in only few sections, or that governance associations are so

abundant in Detroit that no city section contains fewer than average. If governance associations are only abundantly located in a few sections and those sections contain higher percentages of white residents with above average incomes, and education levels then these results would further support claims that association governance can create enclaves of privileged residents and exclude others. Further optimized hot spot analysis of subsequent census data from 1990-210 identified patterns similar to those found in 1980 with subtle differences between census years (decades).

Optimized hot spot results for 1990 identified similar patterns with a few important differences illustrated in figure 7. Similarities between results from1980 and 1990 include shared hot a cold spot sections indicating that where residents have above average incomes also contain higher than average percentages of white residents, residents 25 years and older with a college degree, neighborhood associations, and HOAs. Another similarity between 1980 and 1990 was among cold spot findings indicating that some sections of Detroit where residents have lower than average median household incomes also contain lower than average percentages of white residents and lower than average percentage of residents 25 years and older with a college degree. Similarities were also identified between cold spot sections and hot spot sections where the percentage of white residents is lower than average the median household income, percentage of residents 25 years and older with a college degree, neighborhood associations, and HOAs is higher than average. The last similarity between hot and cold spot sections for 1980 and 1990 was that no cold spot sections were identified for Percent neighborhood association and percent HOA governed. Persistent hot and cold spot similarities between 1980 and 1990 demonstrate that a spatial pattern is present and consistent for that decade and may result from some underlying relationships and/or factors as indicated by Clifford et al. (2016). In terms of

association governance, it is particularly important to determine if these patterns continue throughout 2000 and 2010 and if governance associations affect resident's median household income, education level, and/or race across Detroit or within sections of Detroit.

Figure 7: Detroit Optimized Hot Spot Analysis 1990



Differences in hot and cold spots between 1980 and 1990 primarily pertain to intensity of hot and cold spots while the locations of hot and cold spot clusters changed minimally. Hot and cold spots for median household income decreased in intensity from a 99% confidence interval to mostly falling within a 95% confidence interval. Decreasing intensity means that the difference between the section average and the city's overall average has decreased. In addition to hot and cold spot sections decreasing intensity, the number of cold spot sections for median household income increased and spread further south. The number of hot spot sections representing the percentage of white residents decreased on Detroit's east and west edges, and the intensity of several cold spot sections decreased from a 99% confidence interval to a 95% confidence interval. The most noticeable changes from 1980 to 1990 is the emergence of two clusters of cold spot sections for the percentage of residents 25 years and older with a college degree, and the decrease in hot spot sections for percentage of neighborhood associations.

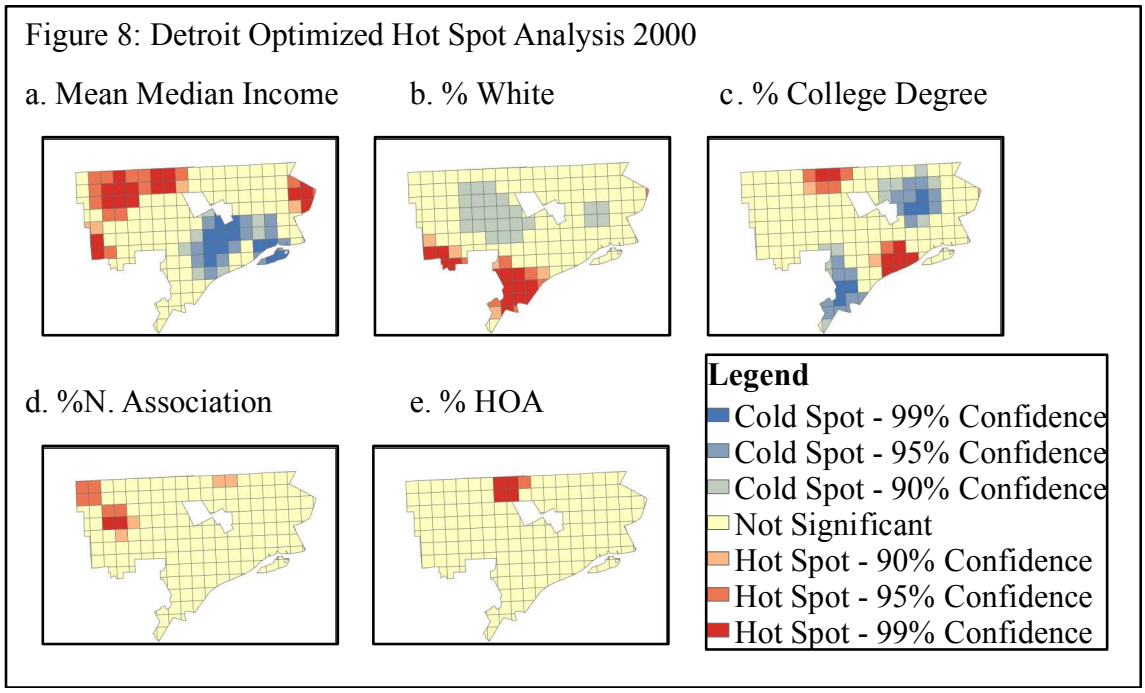
Hot and cold spot section differences between 1980 and 1990 indicate that several sections where the median income, the percentage of white residents, and percentage of neighborhood associations were significantly above or below the city's average adjusted toward the city average; and some sections where the median income and the percentage of residents 25 years and older with a college degree was not significantly different than the city average in 1980 but dropped below the city average in 1990. Hot and cold spot differences described between 1980 and 1990 are consistent with literature describing "white flight," where affluent, educated white residents moved from Detroit to neighboring suburbs (Okrent 2009; Stiglitz 2013; Vojnovic and Darden 2013; Sugrue 2014). Decreasing significance of hot spots in sections with higher than average percentages of neighborhood associations is also consistent with the exodus of affluent, educated white residents from Detroit, and Surgue's (2014) claims that neighborhood associations created social distance between classes and races. If affluent educated white residents used neighborhood associations to create social distance, the exodus of those residents would likely cause neighborhood associations to decrease due to their voluntary nature and reliance on unified members living in close proximity. Sections with above average (hot spot sections) percentages of HOAs, which are involuntary governance associations where membership is automatic upon purchasing property within association boundaries, decreased by one section which changed from a hot spot section within a 90% confidence interval to longer significant. The involuntary nature of HOAs compared to voluntary neighborhood associations provides greater stability since membership is tied to property ownership, and is illustrated by hot spot section consistency between 1980 and 1990. Spatial pattern locations of hot and cold spot sections remained consistent from 1980 to 2000, while changes to the spatial patterns of hot and cold spot sections in 2000 display similarities to those observed between 1980 and 1990.

Optimized hot spot results for 2000 identified some patterns similar to those identified in 1980 and 1990, figure 8 illustrates hot and cold spot sections for 2000. Similarities between results from 1980, 1990 and 2000 include some shared hot spot sections where residents have above average incomes also contain higher than average percentages of white residents, residents 25 years and older with a college degree, neighborhood associations, and HOAs. These patterns of overlapping hot spot section clusters continued to shrink, but remained relatively fixed geographically. One pattern of cold spot sections that had shown consistent overlapping from 1980 to 1990 decreased in 2000 with very few sections remaining where residents have significantly lower than average median household incomes and lower than average percentages of white residents and lower than average percentages of residents 25 years and older with a college degree. These shrinking hot and cold spot clusters are consistent with Detroit's decreasing population and increasing poverty during the 1990's and early 2000's (Okrent 2009; Binelli 2012; LeDuff 2013), and could also account for the expanding cold spot clusters displayed for the percentage of residents 25 years and older with a college degree.

The absence of cold spot sections for the percentage of neighborhood associations and HOAs remained consistent from 1980 to 2000, and hot spot sections for the percentage of HOAs remained the exactly same from 1990 to 2000. This consistency is surprising since Detroit experienced an exodus of upper class during this time, and literature suggests that association governance is a social distancing tool primarily used by upper class citizens (McKenzie 1994; Cashin 2001). A new cluster of hot spot sections was found in Detroit's northwest corner for the percentage of neighborhood associations, adjacent to another cluster of neighborhood association hot spot sections. Hot spot findings for governance associations show importance as hot spots have consistently been identified from 1980 to 2000, and demonstrate important differences in

stability between voluntary neighborhood associations, which have displayed greater hot spot mobility, and involuntary HOAs, which have remained fixed geographically. If governance associations can be used to territorialize social capital, then associations with greater stability could provide greater longevity and value. More interesting changes were found among hot and cold spot clusters analyzed for 2010.

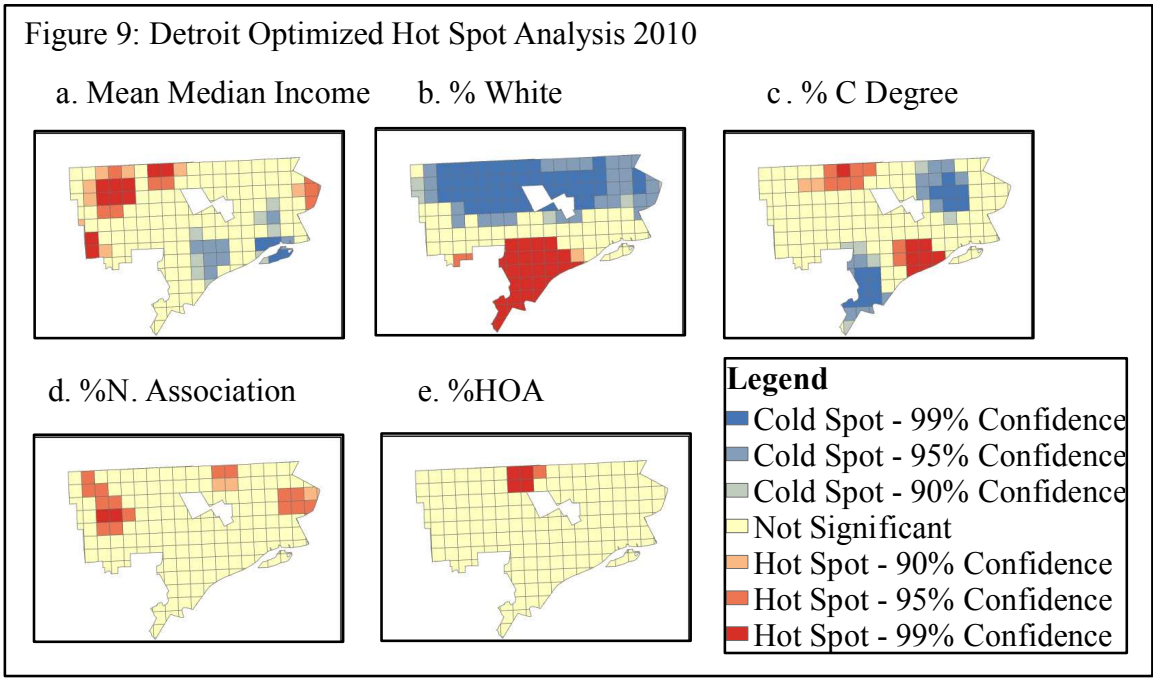
Figure 8: Detroit Optimized Hot Spot Analysis 2000



Hot and cold spot clusters identified for 2010, and depicted in Figure 9, illustrate interesting changes that took place in Detroit between 2000 and 2010. Hot spot sections of median household income, which previously formed one large cluster of sections in northwest Detroit and a smaller cluster of sections on Detroit's east side, are dispersed into three smaller clusters to the west and one to the east. Each median household income hot spot cluster overlaps with hot spots for percentage of neighborhood associations or HOAs. These overlapping hot spot clusters mean that while the number of sections where median household income is above average declined between 2000 and 2010, sections where median household incomes remained above average are also sections where association governance is above average. This finding is

significant because hot spot clusters for median household income and governance associations have consistently been identified at these locations, and despite median income hot spot clusters shrinking, hot spot clusters remained in sections where governance association hot spots are clustered. This finding is consistent with literature insisting that governance associations have been used in Detroit to preserve social class distinctions (Sugrue 2014). Additionally, no cold spot sections were identified for percent neighborhood association or percent HOA, a consistent finding from 1980 to 2010. The absence of cold spots, despite consistent hot spot findings means that across four decades only higher than average clusters of governance associations were discovered, and those clusters were consistently found in the same locations.

Figure 9: Detroit Optimized Hot Spot Analysis 2010



Median household income's large cold spot cluster in southeast Detroit is now dispersed covering few sections of Detroit's downtown business district. Dispersion of this cold spot cluster means that fewer sections, particularly those in the city's downtown business district, display median household incomes significantly lower than the city average. Additionally hot and cold spot clusters of the percentage of white residents shifted, one large cold spot cluster

covers the top half of Detroit, while a large hot spot cluster now covers Detroit's southern tip and spans across most of Detroit's downtown business district. Hot and cold spot clusters for the percentage of residents 25 years and older with a college degree remain in similar locations. The northern hot spot cluster gained two sections, and five sections overlapping with hot spot clusters for median household income and HOAs, while southern hot spot sections have gained intensity, now falling within a 99% confidence interval and covering Detroit's central business district. These overlapping changes correspond with early stages of Detroit's economic and political transition discussed extensively in chapter two, and highlight important demographic shifts that occurred. First, higher than average percentages of white and college educated residents clustered in Detroit's downtown sections, while lower than average median household income clusters decreased downtown. Second, city sections beyond downtown where higher than average median household incomes and college-educated residents clustered are sections where governance associations are higher than average.

Optimized hot spot analysis identified where hot and cold spot clusters overlapped during each decennial census year from 1980 to 2010 (illustrated in figures 6-9 above). Results also identified consistent spatial patterns of hot and cold spot clusters for each variable, illustrated in figures 10-14, from 1980 to 2010. Consistent hot and cold spot patterns among and between median household income, white residents, residents 25 years and older with a college degree, and governance associations between 1980 and 2010 confirm hypothesis one, that characteristics of residential governance associations, household income, education level, and race display similar spatial patterns. Confirming consistent spatial patterns is significant and means that hot and cold spot locations are likely caused by some underlying spatial process and are not random.

An underlying spatial process explains why characteristics of a given variable form clusters in one location over another (Albrecht 2009; Clifford et al. 2016).

Figure 10: Detroit Optimized Hot Spot Results Income 1980-2010

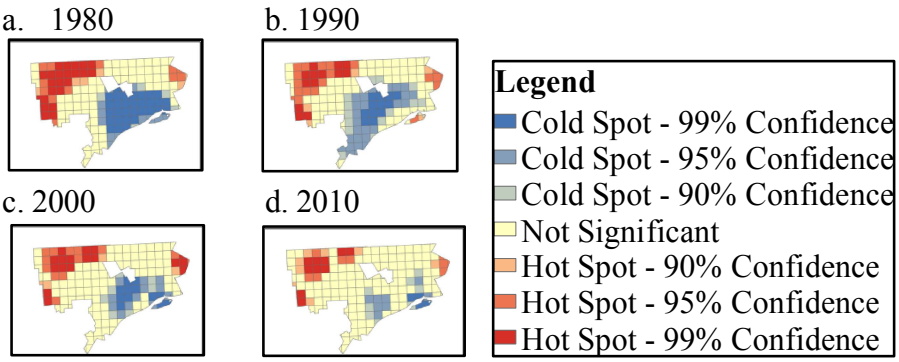


Figure 11: Detroit Optimized Hot Spot Results %White 1980-2010

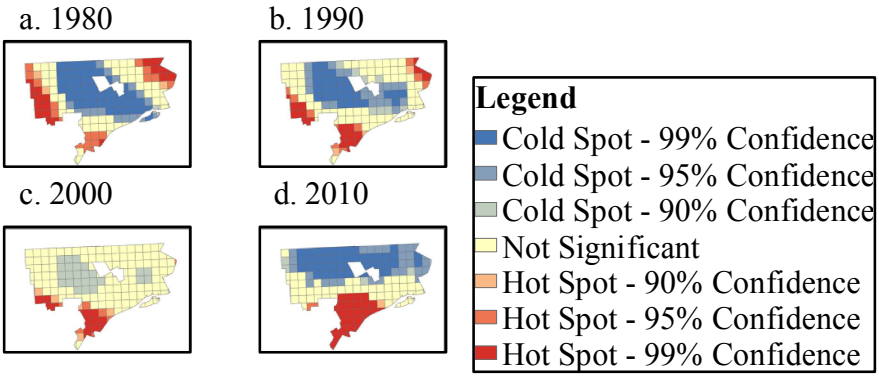


Figure 12: Detroit Optimized Hot Spot Results % College Degree 1980-2010

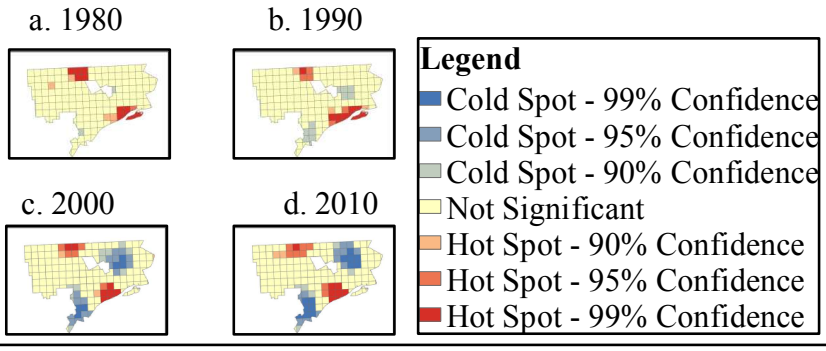


Figure 13: Detroit Optimized Hot Spot Results % Neighborhood Association 1980-2010

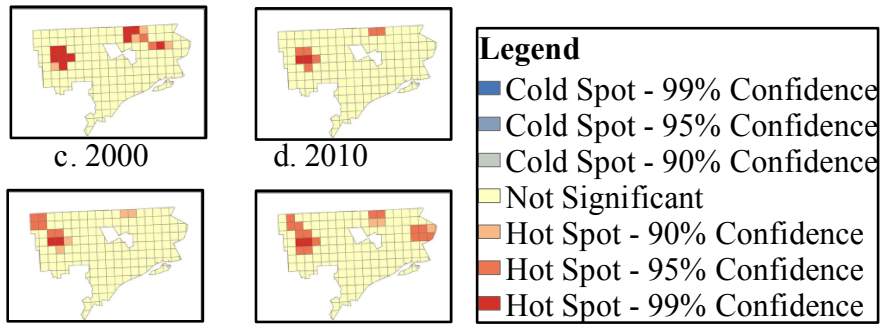
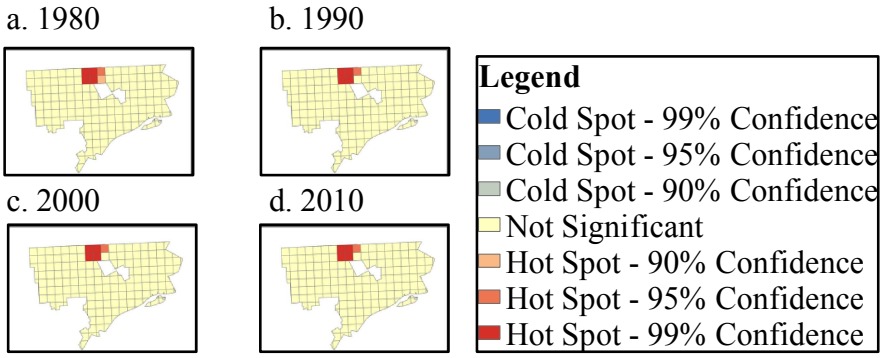


Figure 14: Detroit Optimized Hot Spot Results % HOA 1980-2010



The above analysis results do not confirm or identify a particular spatial process, but provide information for further investigation and hypothesis testing. Consistently hot and cold spot clusters overlapped, despite changing shapes, sizes, intensity, and shifting locations between 1980 and 2010. This trend was especially apparent in 2010 when hot and cold spot clusters for median household income dispersed. As the large cluster of hot spot sections for median income located in the northwest corner of Detroit dispersed, small clusters of hot spot sections remained in sections where governance association hot spots were clustered. Between 1950 and 2000 Detroit's population drastically declined, while crime, poverty, and vacancy rates skyrocketed, and by 2010 financial insolvency was looming and the city's fate was chronicled globally (Okrent 2009; Binelli 2012; Martelle 2012; LeDuff 2013). If city sections where higher

percentages of governance associations are located can retain high-income residents during its most tumultuous decline then city sections where governance associations are prevalent could be affected differently.

Another interesting pattern emerged as hot spot clusters for white and college educated residents shifted toward Detroit's downtown business district, the large cold spot cluster for median household income that had covered and/or surrounded sections of downtown from 1980 to 2000 dispersed. Large investments were just beginning in 2010, the city had yet to attract a single start-up or venture capitalist (Dill 2015), until then small local entrepreneurs and non-profit organizations were shouldering Detroit's revitalization (Okrent 2009). If shifting patterns of hot and cold spot clusters occurred before Detroit experienced large-scale investment, then these shifting patterns of white, college-educated residents could also affect patterns of household income. These spatial patterns helped guide hypotheses two and three that association governance, educational attainment, and race affect household income (H2), and that these affects can vary spatially across the city (H3). This next subsection summarizes hypotheses two and three, methodology employed, and results of hypothesis testing.

Ordinary Least Squares and Geographically Weighted Regression Analysis

Hypothesis two predicted that association governance, educational attainment, and race affect household income, and hypothesis three predicted that affects vary spatially across Detroit. Hypotheses two and three are related, and comparing results will determine if variation in Detroit's median household income is better explained globally, through relationships across the entire city, or locally, through relationships in each city section (Albrecht 2009; Ogneva-

Himmelberger, Pearsall, and Rakshit 2009; Clifford et al. 2016). Hypothesis two relies on global estimates, which predict how well variation in median household income is explained by association governance, educational attainment, and race across Detroit, and was tested using a series of ordinary least squares (OLS) regression models. Hypothesis three relies on local estimates, which predict how well variation in Detroit's median household income is explained by association governance, educational attainment, and race of each city section, and were tested using geographically weighted regression (GWR) models.

One shortcoming of OLS models is that estimations are based solely on affects of explanatory variables and does not account for spatial data such as clustering of variable attributes nearby that may influence estimates (Albrecht 2009; Ogneva-Himmelberger et al. 2009; Clifford et al. 2016). A strength of GWR models is that estimates do account for influences of nearby spatial data and estimates are predicted for every location in the study area (Albrecht 2009; Ogneva-Himmelberger et al. 2009; Clifford et al. 2016). Optimized hot spot analysis identified patterns of hot and cold spot clusters for median household income, association governance, educational attainment, and race between 1980 and 2010, but hot spot analysis cannot identify what caused patterns of hot and cold spot clusters. OLS regression models will be able to determine if variation in Detroit's median household income is associated with association governance, educational attainment, and race (H2); and GWR models will estimate the influence of association governance, educational attainment, and race on median household income in each city section. Hypotheses two and three were tested using ArcGIS 10.4 spatial statistical analysis software.

Testing hypotheses two and three was accomplished using a process similar to Ogneva-Himmelberger et al. (2009), where a series of five OLS regression models were conducted for

each decennial census to assess global effects, followed by a series of five GWR models to assess local effects. Model's 1-4 are bivariate estimates for each explanatory variable, and model 5 is a multivariate regression of the independent variables. Each variable coefficient represents global (OLS) estimates. First, using OLS models each explanatory variable percent HOA (model 1), percent neighborhood association (model 2), percent college degree (model 3), and percent white (model 4) were regressed on the dependent variable, median household income. Conducting separate OLS models for each explanatory variable provides a meaningful intercept value predicting the median household income value when each explanatory variable equals zero. For instance, a predicted value for a given explanatory variable may not be statistically significant, but the absence of the explanatory variable may be statistically significant. Next, all explanatory variables were regressed on median income in the same OLS model (model 5). Including all explanatory variables in a single model identifies the effect of each explanatory variable while controlling for all other variables in the model (coefficient values), and predicts median income when all explanatory variables equal zero (OLS intercept). Finally, all five models are repeated using GWR to predict the local effects, or effects of the explanatory variables on mean median income for each city section in Detroit from 1980-2010. OLS and GWR results are compared by explanatory power (adjusted R^2 value) and overall model fit (Akaike Information Criterion (AICc)) and are documented in tables 2-5. Greater adjusted R^2 values indicate greater explanatory power while lower AICc indicates better model fit.

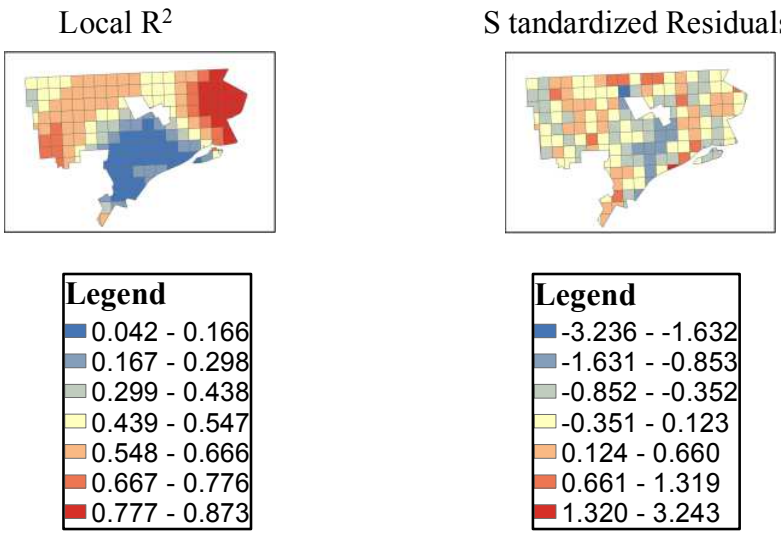
Results for OLS and GWR models of Detroit in 1980, shown in table 2, indicate statistically significant local variation in each model. In each model local estimates better explain variation in median household income, evidenced by greater adjusted R^2 values and

lower AICc values in the GWR models. Greater explanatory power locally means that affects of association governance, educational attainment, and race on median household income vary across sections of Detroit. These findings support the significance of hot and cold spot clusters found for 1980, and are consistent with literature claiming that governance associations, college educated, and white residents cluster in particular areas of the city (Surgue 2014; Maraniss 2015). Finding that association governance, educational attainment, and race affects median household income of city sections differently is especially important because cities can be developed and/or redeveloped to attract or exclude people from certain areas. An interesting finding for 1980 is that the percentage of HOA area is not significant in the global model, but explains 75% of the variance locally. The difference between HOA area's global and local explanatory power could be attributed to HOAs clustering in few sections across the city. Local R^2 values and standardized residuals, shown in Figure 15, illustrate local variation in income explained by model 5 and randomly dispersed residuals, verifying that no local indicators of spatial autocorrelation (LISA) caused model misspecification. Local variation (local R^2 values) in income explained by model 5 overlaps with clusters of hot spot sections identified in 1980. This overlap indicates that 86% of the variance explained locally by model 5 accounts for high-income variation. Similar findings were discovered in results from OLS and GWR models of 1990.

Table 2: OLS & GWR Models for Dependent Variable Median Income Detroit 1980					
	Model 1	Model 2	Model 3	Model 4	Model 5
% HOA Area	33.59				14.26
% N Assoc. Area		79.10*			67.24*
% College Degree			167.17*		129.05*
% White				52.70*	48.46*
OLS Intercept	14702.33*	14386.74*	13382.88*	12611.35*	11182.75*
OLS adj R^2	0.007	0.05*	0.06*	0.13*	0.203*
OLS AICc	3432.17	3425.32	3422.17	3409.92	3397.36
GWR adj R^2	0.749	0.877	0.904	0.892	0.863
GWR AICc	3203.5	3126.44	3078.06	3094.11	3113.92

Statistically Significant at p<.01*

Figure 15: Detroit Spatial Variation in GWR Analysis of Income 1980



Results for OLS and GWR models in 1990, shown in table 3, are similar to results from 1980 also indicating statistically significant local variation in each model. Again local estimates better explain variation in median household income for each model, and is supported by greater adjusted R^2 values and lower AICc values for the GWR models. The percentage of HOA area is still not significant and the percentage of neighborhood associations is no longer significant in the global model (OLS), but both account for large portions of the variance in the local model (%

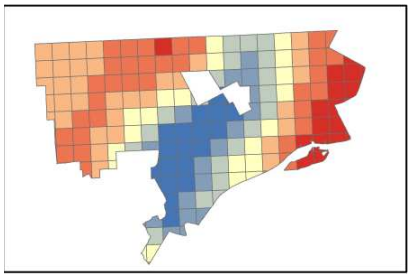
HOA adjusted R^2 =59% and % neighborhood association adjusted R^2 =63%), which decreased since 1980. Between 1950 and 2000 Detroit's population significantly declined and vacancies increased dramatically (Okrent 2009). Population decline and increased vacancies could account for local variation, as neighborhoods may be affected by vacancies and population loss differently, for instance governance associations have been shown to provide traditionally public services and additional services beyond those traditionally offered by municipalities (McCabe 2011). Additionally governance associations decreasing significance during population decline and increased vacancies could be the result of having fewer residents available to participate in governance associations, especially voluntary associations which were no longer significant and accounted for less local income variation in 1990 compared to 1980. Local R^2 values and standardized residuals, shown in Figure 16, illustrate local variation in income explained by model 5 and randomly dispersed residuals, verifying that no local indicators of spatial autocorrelation (LISA) caused model misspecification. Local variation (local R^2 values) in income explained by model 5 overlaps with clusters of income hot spot sections. This overlapping means that model 5 explains 85% of the variation in median household income, and primarily explains high-income variation. OLS and GWR results for 2000 highlight increasing significance of explanatory variables, and slight decreases to local explanatory power for each model.

Table 3: OLS & GWR Models for Dependent Variable Median Income Detroit 1990					
	Model 1	Model 2	Model 3	Model 4	Model 5
% HOA Area	66.06				-15.4
% N Assoc. Area		61.51			63.27
% College Degree			569.43*		557.96*
% White				66.14*	58.65*
OLS Intercept	20336.39*	20208*	14696.66*	18775.07*	12726.99*
OLS adj R^2	0.01	0.01	0.381*	0.05*	0.417*
OLS AICc	3622.72	3623.55	3541.54	3616.36	3534.5
GWR adj R^2	0.593	0.63	0.901	0.817	0.853
GWR AICc	3478.15	3466.15	3271.94	3386.67	3318.56

Statistically Significant at p<.01*

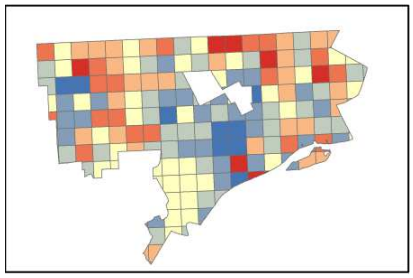
Figure 16: Detroit Spatial Variation in GWR Analysis of Income 1990

Local R^2



Legend
- 0.097 - 0.227
- 0.228 - 0.350
- 0.351 - 0.482
- 0.483 - 0.629
- 0.630 - 0.731
- 0.732 - 0.815
- 0.816 - 0.905

Standardized Residuals



Legend
- -3.038 - -1.609
- -1.608 - -0.767
- -0.766 - -0.227
- -0.226 - 0.233
- 0.234 - 0.827
- 0.828 - 1.728
- 1.729 - 3.670

OLS and GWR results for Detroit in 2000 are shown in table 4 and despite decreasing explanatory power results indicate statistically significant local variation in each model. OLS results indicate increasing significance of governance associations, college educated residents and a slight decrease in the significance of white residents and local explanatory power

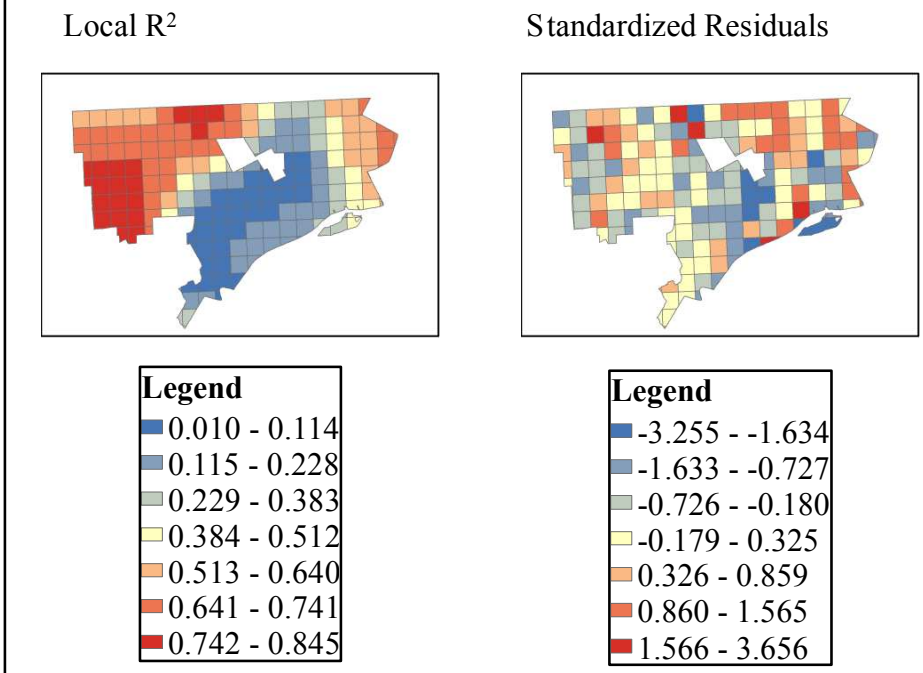
compared to 1990. In 2000 Detroit's population was still in decline, most white residents had fled to suburban communities, and poverty and vacancy rates were still at record highs (Okrent 2009; LeDuff 2013). Shifting explanatory power of governance associations could be demonstrating the ability of governance associations and college educated residents to influence the location of higher income residents. Governance associations have been found to attract affluent residents (McKenzie 1994; Cashin 2001; McCabe 2011). The ability of governance associations to influence locations of high-income residents would be an interesting finding because governance associations are easily created and implemented as development strategies.

Greater adjusted R^2 values and lower AICc values for the GWR models indicate that local estimates better explain variation in median household income for each model. Local R^2 values and standardized residuals, shown in figure 17, illustrate local variation in income explained by model 5 and randomly dispersed residuals, verifying that no local indicators of spatial autocorrelation (LISA) caused model misspecification. Local variation (local R^2 values) in income explained by model 5 overlaps with clusters of income hot spot sections. This overlapping means that model 5 explains 78% of income variation and primarily at high-income locations. Global and local regression model results for 2010 explain less variation in median household income compared to results from previous decades.

Table 4: OLS & GWR Models for Dependent Variable Median Income Detroit 2000					
	Model 1	Model 2	Model 3	Model 4	Model 5
% HOA Area	102.43*				16.08
% N Assoc. Area		114.57*			97.56*
% College Degree			573.41*		539.64*
% White				50.91	57.72*
OLS Intercept	28898.83*	28456.35*	23226.54*	28581.93*	21666.32*
OLS adj R^2	0.023*	0.029*	0.22*	0.005	0.24*
OLS AICc	3671.26	3670.18	3632.06	3674.49	3630.81
GWR adj R^2	0.577	0.581	0.855	0.8	0.778
GWR AICc	3535.84	3538.81	3389.02	3477.63	3442.36

Statistically Significant at p<.01*

Figure 17: Detroit Spatial Variation in GWR Analysis of Income 2000



OLS and GWR model results for Detroit in 2010, shown in table 5, indicate much less local variation in each model compared to previous decades. Greater adjusted R^2 values and lower AICc values for the GWR models indicate that local estimates better explain variation in median household income for each model. Local R^2 values and standardized residuals, shown in

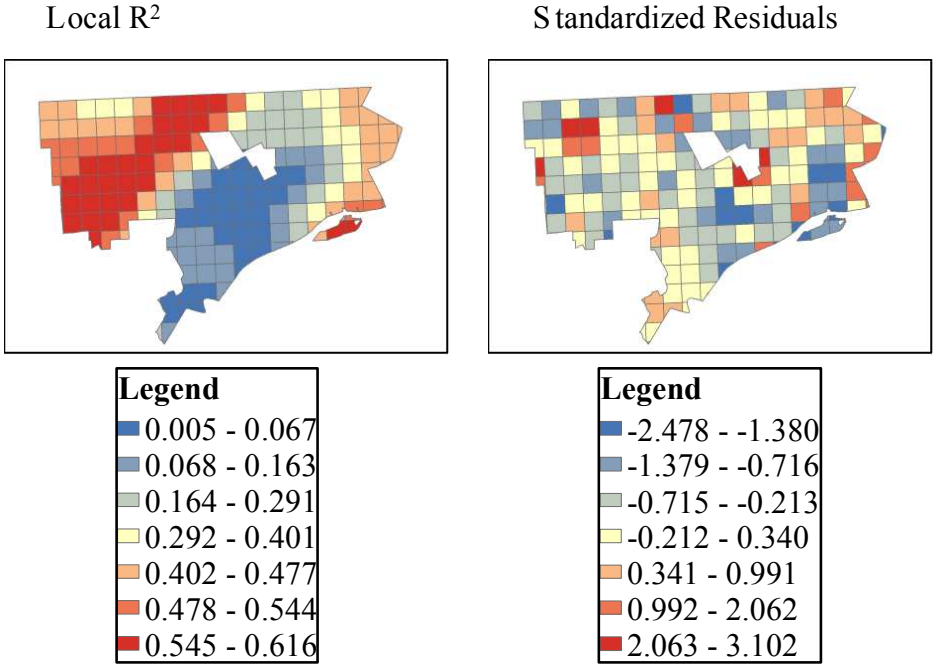
figure 18, illustrate local variation in income explained by model 5 and randomly dispersed residuals, verifying that no local indicators of spatial autocorrelation (LISA) caused model misspecification. Model 5 five only accounts for 62% of income variation in 2010 declining from 78% in 2000, 85% in 1990, and 86% in 1980. Between 2000 and 2010 Detroit's population continued to decline while city poverty rate and vacancies skyrocketed. By 2009 20% of Detroit's 400,000 postal addresses were unoccupied (Okrent 2009), large population decline and increasing poverty may have decreased the income variation identified in previous decades. Despite decreasing explanatory power local estimates were consistently found to better explain income variation. Finding that local models better represent these data means variation in median household income is not generalizable across all sections of Detroit because factors influencing median household income significantly vary by city section.

Table 5: OLS & GWR Models for Dependent Variable Median Income Detroit 2010

	Model 1	Model 2	Model 3	Model 4	Model 5
% HOA Area	75.14				16.5
% N Assoc. Area		140.30*			115.53*
% College Degree			501.41*		467.73*
% White				-66.44	-22.13
OLS Intercept	28896.86*	28443.24*	23519.32*	30235.71*	23419.44*
OLS adj R^2	0.012	0.040*	0.163*	0.009	0.184*
OLS AICc	3650.72	3645.87	3621.96	3651.24	3620.99
GWR adj R^2	0.391	0.416	0.714	0.737	0.62
GWR AICc	3576.19	3572.4	3479.51	3487.73	3512.48

Statistically Significant at p<.01*

Figure 18: Detroit Spatial Variation in GWR Analysis of Income 2010



OLS and GWR results from 1980-2010 consistently indicated that association governance, educational attainment, and race affect household income and that those affects vary across the city confirming hypotheses two and three. Local variation of median household income that was identified in OLS and GWR results describes an underlying spatial process enabling income to vary spatially. Does the spatial variation of income rely on other social class indicators? If social class indicators contribute to spatial variation of income then distinct groups can be formed based on social class characteristics and separated spatially. Association governance literature claims that governance associations form enclaves of affluence that separate citizens by social class characteristics (McKenzie 1994; Blakely and Snyder 1997; Cashin 2001). Grouping analysis was performed to better understand spatial processes that may account variance in local effect size and/or significance. The following subsection summarizes

results from grouping analysis to better understand underlying spatial processes identified by GWR results and how each variable may be associated.

Grouping Analysis

Hypothesis four predicted that association governance varies with population characteristics and forms distinct enclaves. Optimized hot spot results found that areas where income were also areas where association governance was high, even during Detroit's economic decline. OLS results found associations between governance associations and income that were confirmed by GWR analysis to vary by spatial location. In other words, the association varies across sections of Detroit. Results from grouping analysis will indicate if characteristics of association governance, educational attainment, race, and median household income form groups in areas of Detroit where variable characteristics are distinctly different. Hypothesis four was tested using grouping analysis to identify unique clusters of variable attributes.

This classification strategy finds natural clusters by organizing groups of similar features, while maintaining differences between groups (Assuncao et al. 2006; Jain 2009). Grouping Analysis identified unique groups, or sections with similar variable values, and variable characteristics that best differentiate each group in Detroit from 1980-2010. Grouping analysis was conducted using ArcGIS10.4 spatial statistics software. The optimal number of groups is determined by the pseudo F-statistic, and measures similarity within groups and differences between groups using a K Means algorithm (Assuncao et al. 2006; Jain 2009). The K Means algorithm groups variable features by maximizing similarities within groups and maximizing differences between groups, using the K means algorithm does not require spatial constraints

(Assuncao et al. 2006; Jain 2009). Utilizing the K Means algorithm without spatial constraints allows unique groups to be identified in any section of Detroit and will detect if variable characteristics are unique to one or more sections. For example if values of each variable are high and/or low in a given section or cluster of sections they may for a distinct group. The variable that differentiates groups most effectively, or best distinguishes one group from the other groups, is determined by the highest R^2 value. Grouping analysis results from 1980-2010 are summarized with results tables and maps to illustrate findings.

In 1980 eight unique groups were identified in Detroit, and the variable percentage of HOA area was found to best define groups ($R^2 = 0.874$). This means that the percentage of HOA area in a section best determines a section's group classification. Group 4 contains that highest percentage of HOA area (69.87%) and is also the highest income group ($22,726.79), while the percentage of residents 25 years and older with a college degree (24.44%) and percentage of white residents (56.92%) are not the highest in group 4. Interestingly, where the highest percentage of residents 25 years and older have a college degree, residents fall within one of the lowest income groups (group 2). This finding is unexpected because higher levels of education are typically associated with higher earnings, but supports claims that HOAs do attract upper class residents (McKenzie 1994; Sugrue 2014).

Where the highest percentage of neighborhood associations are located, group 3, residents have higher than average incomes and slightly higher percentages of white residents and residents 25 years and older with college degrees. However, higher percentages of HOAs do not automatically equate to upper class groups. Group 5 contains that second highest percentage of HOA area (57.52%) and is the lowest income group ($7,992.11) with lower than average percentage of white residents (29.06%) and a slightly higher than average percentage of residents

with a college degree (11.6%). While where neighborhood associations have the second highest percentage (5.47%) residents fall into the second highest income ($19,661.82) group with the highest percentage of white residents (90.16%) and slightly above average percentage of residents with a college degree (9.22%). Overall findings for neighborhood associations do support claims that association governance does attract economically advantaged residents (Cashin 2001; McCabe 2011), and that Detroit's wealthy white residents resided where associations were abundant (Sugrue 2014). The eight groups identified in 1980 are illustrated in figure 19 and detailed in table 6 demonstrate how these groups are scattered across Detroit and are not continuous groups.

Figure 19: Detroit Grouping Analysis 1980

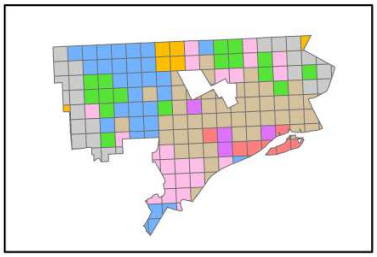


Table 6: Detroit Grouping Analysis 1980

	% HOA		% N. Assoc.		Income (USD)		% C. Degree		% White	
	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2
Overall	**4.69**	**0.874**	**5.981**	**0.739**	**14,859.84**	**0.764**	**8.83**	**0.594**	**42.67**	**0.781**
	Mean	Share	Mean	Share	Mean	Share	Mean	Share	Mean	Share
Group 1	0.73	0.183	1.44	0.259	18,039.44	0.339	8.45	0.325	13.55	0.337
Group2	0.62	0.06	1.11	0.124	9,662.36	0.237	27.54	0.4597	38.46	0.437
Group 3	0.19	0.032	42.89	0.668	17,722.72	0.578	10.49	0.609	42.81	0.879
Group 4	69.87	0.552	1.76	0.12	22,726.79	0.43	24.44	0.874	56.92	0.843
Group 5	57.52	0.411	0.71	0.035	7,992.11	0.238	11.6	0.233	29.06	0.446
Group 6	1.33	0.187	1.78	0.315	10,124.83	0.3657	4.63	0.284	17.08	0.54
Group 7	0.18	0.049	0.85	0.129	13,423.20	0.3489	4.63	0.337	70.28	0.535
Group 8	1.95	0.288	5.47	0.349	19,661.82	0.374	9.22	0.46	90.16	0.402

Results for 1990 discovered 9 unique groups and again found the percentage of HOA area to best differentiate between groups ($R^2 = 0.85$). Group 2 contained the highest percentage of HOA area (69.34%), but was the second highest group for income ($35,276.60), percentage of residents 25 years and older with a college degree (25.54%) and above average percentage of white residents (37.65%). Consistently finding higher percentages of HOAs grouped with high income levels and higher percentages of college educated white residents is consistent with observational findings of elite white neighborhoods in Detroit (Martelle 2012; LeDuff 2013; Sugrue 2014; Maraniss 2015). Again where the percentage of HOA area is second highest (53.34%) income is the lowest ($12,214.56), neighborhood associations account for 30.05% of subdivision area, residents with a college degree is above average (12.75%), but the percentage of white residents is below average (16.47%). Sections where percentages of neighborhood associations are highest (50.55%) are the highest income group ($37,519.75) with higher than average percentages of residents 25 years and older has a college degree (26.10%), but fewer than average white residents (16.33%). Differing variations of income level, governance associations, education level, and white residents among groups is consistent with Blakely and Synder's (1997) findings that governance associations and their corresponding class, educational, and racial characteristics separate associations into classes. Table 7 provides details of the nine groups identified in 1990, which are illustrated in figure 20 and depict how these groups are scattered across Detroit and are not continuous groups.

Figure 20: Detroit Grouping Analysis 1990

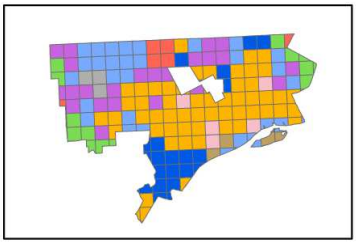


Table 7: Detroit Grouping Analysis 1990										
	% HOA		% N. Assoc.		Income (USD)		% C. Degree		% White	
	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2
Overall	**5.16**	**0.854**	**7.63**	**0.756**	**20,677.49**	**0.751**	**10.5**	**0.737**	**28.76.67**	**0.771**
	Mean	Share	Mean	Share	Mean	Share	Mean	Share	Mean	Share
Group 1	1.43	0.183	0.99	0.169	26,052.82	0.418	12.74	0.414	14.73	0.446
Group2	69.34	0.551	1.92	0.12	35,276.60	0.519	25.54	0.486	37.65	0.906
Group 3	2.48	0.287	4.39	0.349	29,544.49	0.339	11.6	0.29	84.83	0.436
Group 4	1.79	0.219	2.31	0.225	13,969.28	0.312	5.81	0.478	10.07	0.36
Group 5	0.414	0.063	33.05	0.428	22,749.50	0.481	8.63	0.225	18.99	0.543
Group 6	0	0	0	0	32,178.87	0.507	43.46	0.469	40.14	0.443
Group 7	53.34	0.452	30.05	0.854	12,214.56	0.261	12.747	0.291	16.47	0.275
Group 8	0	0	50.55	0.568	37,519.75	0.184	26.103	0.085	16.33	0.085
Group 9	0.308	0.073	0	0	14,180.75	0.323	5.27	0.265	61.98	0.505

In both 2000 and 2010 six unique groups were identified, along with similarities between group characteristics. In 2000 the percentage of HOA area still defines group classification best ($R^2 = 0.81$). The percentage of HOA area is highest in group 4 (64.33%) and is the highest income group ($36,850.33) with above average percentages of neighborhood associations (12.77%), college educated residents (22.61%), and below average percentage of white residents (14.5%). This finding is important because it shows governance associations best define the highest income area despite lower than average percentages of white residents and higher than average percentages of residents with college degrees. This finding supports findings observational research focused on Detroit neighborhoods claiming that association governance can informally segregate residents (Sugrue 2014). Additionally, groups with the highest percentages of white residents and college-educated residents have below average income levels, but groups where percentages of HOA area and neighborhood association area are highest have above average income levels. This finding suggests that sections with higher percentages of governance associations can attract and/or retain higher income residents. The six groups identified in 2000 are listed in table 8 and illustrated in figure 21.

Figure 21: Detroit Grouping Analysis 2000

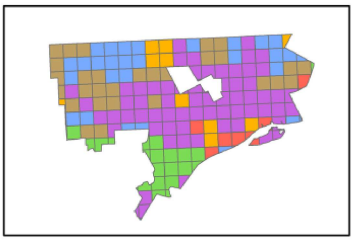


Table 8: Detroit Grouping Analysis 2000

	% HOA		% N. Assoc.		Income (USD)		% C. Degree		% White	
	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2
Overall	**5.43**	**0.81**	**8.714**	**0.702**	**29,454.74**	**0.405**	**10.86**	**0.61**	**17.14**	**0.758**
	Mean	Share	Mean	Share	Mean	Share	Mean	Share	Mean	Share
Group 1	1.85	0.183	0.932	0.12	36,770.96	0.321	12.54	0.342	9.8	0.454
Group2	0.69	0.057	2.8	0.124	29,353.71	0.474	32.7	0.497	23.21	0.41
Group 3	0	0	0.277	0.068	29,072.27	0.443	7.36	0.256	58.53	0.555
Group 4	64.33	0.603	12.77	0.854	36,850.33	0.785	22.61	0.603	14.5	0.356
Group 5	1.94	0.218	3.221	0.337	22,428.66	0.501	6.49	0.398	7.36	0.3226
Group 6	3.35	0.385	37.96	0.752	35,411.72	0.552	12.15	0.413	12.01	0.558

In 2010 six unique groups were identified, and the defining group characteristic is the percentage of neighborhood association area (R^2 =0.811). Again groups with the highest percentages of HOA and neighborhood association area have above average income levels despite having below average percentages of white residents and varying percentages of college educated residents. Group 5 is the lowest income group and is comprised of the highest percentage of white residents (47.34%), the lowest percentage of college-educated residents and well below average percentages of HOA (0.95%) and neighborhood association (0.25%) area. Table 9 details the six groups identified in 2010 and figure 22 illustrates how these groups are scattered across Detroit and are not continuous groups. Grouping analysis findings from 1980-2010 further support research such as Blakely and Snyder's (1997) that associations can embody varying degrees of class indicators. Most importantly findings from 1980-2010 confirm

hypothesis four that association governance will vary spatially with educational attainment, race, and household income characteristics forming distinct groups across Detroit. The number and characteristics of groups identified from 1980- 2010 varied but consistently governance associations were a defining characteristic and higher percentages remained grouped with higher income levels regardless of the percentage of white and college educated residents.

Figure 22: Detroit Grouping Analysis 2010

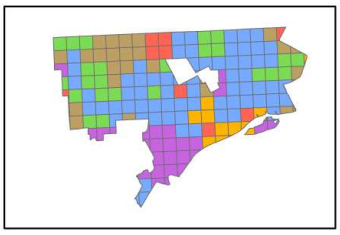


Table 9: Detroit Grouping Analysis 2010

	% HOA		% N. Assoc.		Income (USD)		% C. Degree		% White	
	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2
Overall	**5.42**	**0.797**	**6.138**	**0.811**	**29,304.45**	**0.406**	**11.54**	**0.627**	**14.02**	**0.808**
	Mean	Share	Mean	Share	Mean	Share	Mean	Share	Mean	Share
Group 1	2.15	0.219	1.46	0.275	25,065.22	0.332	8.14	0.292	5.01	0.372
Group2	67.38	0.551	1.28	0.133	37,815.20	0.68	22.1	0.538	9.07	0.263
Group 3	1.64	0.385	37.19	0.068	33,385.39	0.637	12.36	0.432	6.16	0.267
Group 4	4.192	0.397	0	0	25,170.48	0.367	28.77	0.614	20.01	0.456
Group 5	0.947	0.287	0.247	0.075	24,744.94	0.735	5.91	0.29	47.34	0.623
Group 6	2.312	0.337	1.53	0.257	38,835.16	0.361	15.13	0.356	10.12	0.46

These research findings from Detroit suggest that association governance can structure social distance, and can also retain social distance despite drastic decline. Findings from optimized hot spot analysis confirmed hypothesis one that characteristics of residential governance associations, household income, education level, and race displayed spatial patterns or clusters across Detroit from 1980-2010. Hot and cold spot clusters identified sections where residential governance associations, household income, education level, and race displayed

characteristics significantly above or below city averages. Hot and cold spot sections also displayed consistency between 1980 and 2010: First, by remaining geographically fixed in particular areas of Detroit, excluding the noted shift of white residents toward Detroit's downtown area in 2010. Second, hot and cold spot sections were consistently shared among residential governance associations, household income, education level, and race. Despite Detroit's drastic economic and population decline characteristics of residential governance associations, household income, education level, and race remain consistently higher and/or lower in particular areas of the city, suggesting a relationship exists between those characteristics and their locations. Finding consistent spatial patterns of hot and cold spot sections despite drastic decline and restructuring indicated that spatial associations between variables was not likely random and should be examined further.

Associations identified by hot and cold spot locations were further examined using ordinary least squares and geographically weighted regression analysis. Findings from OLS regression analysis confirmed hypothesis two that association governance, educational attainment, and race to some degree affect household income in Detroit. These regression models displayed somewhat inconsistent findings concerning the significance of governance associations. HOA and neighborhood association area or the absence of association area displayed varying levels of significant association with household income from 1980-2010; suggesting that spatial patterns identified as hot and cold spot locations may depict localized affects that vary by city section. Geographically weighted regression (GWR) analysis confirmed hypothesis three that affects of association governance, educational attainment, and race on household income vary by city section. Governance associations affected household income of city sections differently across the city for each decennial census year.

Varying affects of governance associations across Detroit suggested that sections being affected had unique characteristics relative to the city's overall population. Finally, Grouping analysis confirmed hypothesis four that association governance varied spatially with educational attainment, race, and household income characteristics forming distinct groups. Consistently section groupings where percentages of governance association area was high household income was above average and this finding was consistent despite varying percentages of white and college educated residents. Detroit has been chronicled for decades of population decline and increased poverty alongside "white flight," decentralization, increasing suburban development, and political fragmentation in suburban communities (Okrent 2009; Martelle 2012; LeDuff 2013; Vojnovic and Darden 2013; Surgue 2014). Observational and or block level research has suggested governance associations enforced and perpetuated social distancing in Detroit and between Detroit and neighboring suburbs, but insufficient data on governance associations has limited empirical examinations. Examining the affects of residential governance associations in Detroit and neighboring suburb Troy highlight similarities and differences between governance associations and their role in socially structuring communities. The following section summarizes the affects of governance associations in Troy from results of hypothesis testing using optimized hot spot analysis, OLS and GWR regression analysis, and grouping analysis.

GOVERNANCE AND HOMEOWNER ASSOCIATIONS IN TROY

Troy, Michigan a suburban community north of Detroit, discussed extensively in chapter three, was developed and experienced large-scale growth during Detroit's decline, but underwent different patterns of residential development. Residential development in Troy parallels

definitions of suburban sprawl (Duany, Plater-Zyberk, and Speck 2000), and Metropolitan Detroit's fragmented suburbanization (Vojnovic and Darden 2013). A key difference in Detroit and Troy's residential development, discussed in chapter four, pertains to governance associations. Deed restrictions and later neighborhood associations were Detroit's primary association forms, and HOAs accounted for few associations; while HOAs were the only form of residential governance association found in Troy. Since neighborhood associations were not identified in Troy the percentage of area governed by a neighborhood association was excluded from the analysis.

Differences in racial composition also exist between Detroit and Troy, and were discussed extensively in chapter three. In Detroit residential governance associations were primarily established by white residents as a segregation tactic, and remained after Detroit's population shifted from predominately white residents to predominately black residents (Sugrue 2014). Detroit's suburban communities have historically been comprised of affluent white residents (Binelli 2012; Stiglitz 2013; Vojnovic 2013; Sugrue 2014). Differences in racial composition of Detroit and Troy's city sections are displayed in Table 10.

Table 10: Racial Composition of Detroit and Troy City Sections 1980-2010

	1980		1990		2000		2010	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Detroit								
Total Population	6,950.98	4,007.17	5,938.15	3,463.61	5,495.13	3,251.05	4,123.07	2,437.59
% Black	53.87	35.27	67.98	31.7	75.72	27.33	78.45	25.57
% Other	3.46	5.32	3.34	5.3	7.13	9.42	7.53	10.23
% White	42.67	33.45	28.76	29.01	17.14	19.95	14.02	16.79
Troy								
Total Pop.	2,387.78	1,307.06	2,504.87	1,061.48	2,714.49	1,012.48	2,699.30	998.98
% black	0.92	0.63	1.27	0.82	1.99	0.76	3.83	1.78
% other	4.19	1.78	6.37	2.95	13.72	5.95	19.57	7.63
% white	94.89	2.07	92.36	3.49	84.3	6.52	76.6	8.41

Racial composition in Detroit city sections shows an increasing number of black residents and a decreasing number of white residents, and slightly increasing percentages of individuals who identify as neither black nor white between 1980 and 2010. Racial composition in Troy city sections are predominately white, but show an increasing number of residents who identify as neither black nor white, and only slight increases in residents who identify as black between 1980 and 2010. Due to differences in racial composition analyses in Troy will investigate race through non-white residents which are more likely to vary across city sections than white residents who make-up the population's majority. Differences in governance associations and racial composition may result in different spatial affects in Troy than those identified in Detroit.

Optimized Hot Spot Analysis

Hypothesis one predicted that characteristics of HOA governance, household income, education level, and race would display similar spatial patterns. Simply, this first hypothesis predicts that association governance, household income, education level, and race will share similar patterns of cluster intensity across Troy from 1980-2010. Testing this hypothesis will indicate if HOAs are clustered to a greater or lesser degree in any particular area of Troy and if patterns of clustering are shared among variables. Metropolitan Detroit's suburban communities are known for their homogenous, affluent, white populations that accumulated during Detroit's economic and population decline (Okrent 2009; Stiglitz 2013; Sugrue 2014). Optimized hot spot findings will indicate if HOAs are clustered in the same city sections as high income, highly

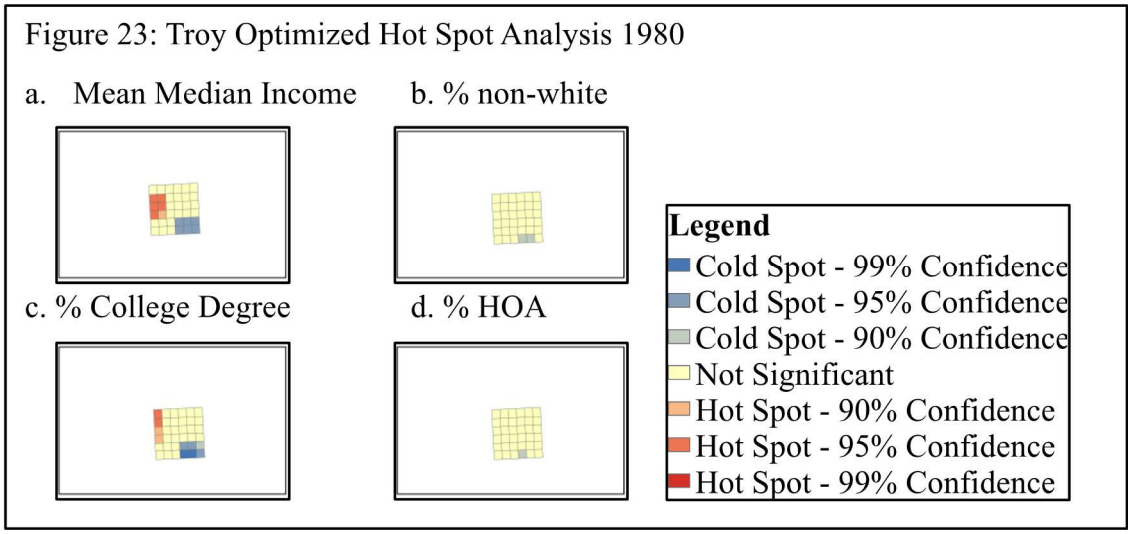
educated, and white residents; and if those patterns are consistent in Troy from 1980- 2010 as they were in Detroit.

Hypothesis one was tested using Optimized Hot Spot Analysis in ArcGIS10.4 spatial statistical analysis software. Optimized hot spots were identified for each variable individually between 1980-2010, hot and cold spots from each decennially census were identified separately. As indicated above, optimized hot spot analysis uses z-scores to identify cluster intensity, locations where a variable's values significantly deviate from the sample mean by one, two, or three standard deviations (Clifford et al. 2016). In this analysis a hot spot indicates a location (city section) where a variable's attributes are one, two, or three standard deviations above the city-wide mean, and a cold spot indicates locations where a variables attributes are 1.65, 1.96, or 2.58 standard deviations below the mean. Cluster intensity, or hot and cold spots, are supported by confidence intervals where 1.65 standard deviation above or below the mean falls within a 90% confidence interval, 1.96 standard deviations falls within a 95% confidence interval, and 2.58 standard deviations falls within a 99% confidence interval. Statistically significant high value clusters, hot spots, and low value clusters, cold spots, were identified and corrected for multiple testing and spatial dependence using the False Discovery Rate (FDR). Hot and cold spots ranging from 90-99% confidence intervals are identified and mapped by city section. This subsection explains optimized hot spot results for variables where similar spatial patterns were identified. Figures 23-26 display hot and cold spots for mean median income, percentage of section population identifying racially as non-white (percent non-white), percentage of section aged 25 years and older having earned a college degree (percent college degree), and percentage of area governed by an HOA (percent HOA) for decennial census years 1980-2010. This

subsection will conclude with a summary of how hot and cold spot sections in Troy have changed from 1980-2010 and will be illustrated by figures 27-30.

Optimized hot spot results for Troy in 1980 identified spatial patterns for median income, percent non-white, percent college degree, and percent HOA, and indicate mutual statistically significant hot and cold spot sections. Figure 23 illustrates hot and cold spot clusters in 1980 for each variable by Troy city section. As indicated in the previous section, hot and cold spots are city sections where values of a given variable are one, two, or three standard deviations above or below the mean value across the city. Finding hot and/or cold spots for multiple variables in the same city section suggests that variables may share an association caused from an underlying spatial process (Clifford et al. 2016). As stated above, an underlying spatial process refers to some characteristic of a location that may account for hot or cold spots that are not attributed to randomness (Clifford et al. 2016).

Figure 23: Troy Optimized Hot Spot Analysis 1980



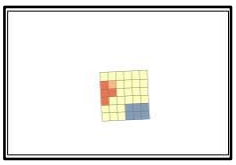
Mutual hot spot sections were identified along Troy's western border sections for median household income and percent college degree. This finding is interesting because communities located west of Troy are wealthy communities, as noted in chapter three, finding only hot spot sections shared between household income and residents having a college degree along Troy's

wealthiest border. Mutual cold spot sections were identified for household income, percent college degree, percent non-white, and percent HOA along Troy's southeast border. Finding only shared cold spot sections for household income, percent college degree, percent non-white, and percent HOA along Troy's southeast border is an interesting finding because communities southeast of Troy are the least wealthy communities surrounding Troy. Together these findings support Stiglitz (2013) concern for growing economic segregation, as only cold spots were identified for Troy's minority population which were also shared with cold spot locations for percent HOA area, college educated residents, and household income.

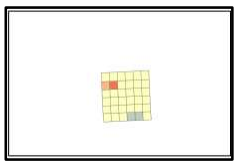
Hot and Cold spot results for Troy in 1990 identified patterns of hot and cold spot clusters similar to those identified in 1980 for median household income, college educated and non-white residents, and the percentage of HOA area. Figure 24 illustrates optimized hot and cold spots in 1990 for each variable in Troy by city section. All hot spot sections identified were located along Troy's western border, which borders Troy's wealthiest neighboring communities; while all cold spot sections were identified along Troy's south and southeastern border closest to Troy's least affluent neighboring communities. Hot spot sections were shared between median household income, percent college degree, and percent non-white; however percent HOA area shared hot spot sections with college educated residents but not non-white residents or median household income. Cold spot sections were shared between median household income, college educated and non-white residents, and the percentage of HOA area. These results are similar to those found in 1980 and interesting because again high value clusters are located near Troy's wealthiest neighboring communities while low value clusters are located on the opposite side of Troy near its least wealthy neighboring communities, and could represent a greater emphasis on social class distancing rather than racial social distancing in Troy.

Figure 24: Troy Optimized Hot Spot Analysis 1990

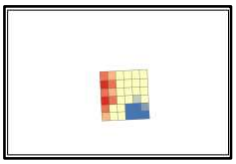
a. Mean Median Income



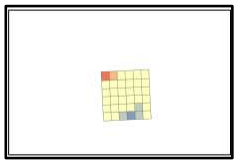
b. % non-white

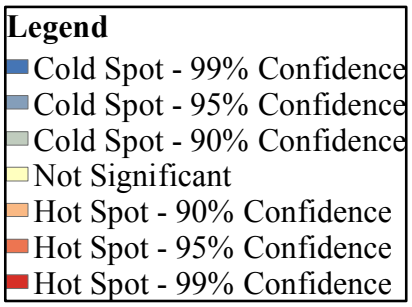


c. % College Degree



d. % HOA

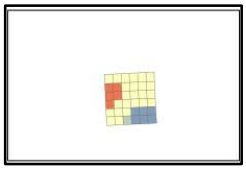




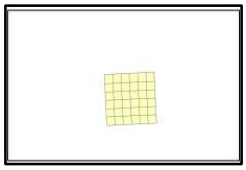
Findings for Troy in 2000 identified hot and cold spot patterns similar to findings from 1990 for median household income, college educated residents, and the percentage of HOA area. The percentage of non-white residents no longer displays any significant hot or cold spot locations. Figure 25 illustrates optimized hot and cold spot clusters in 2000 for each variable in Troy by city section. Shared hot spot sections were again identified along Troy's western border between median household income, college educated residents, and the percentage of HOA area. Hot spot sections for college educated residents increased in intensity from a 95% confidence interval to a 99% confidence interval, but hot and cold spot clusters only identify shared locations and can not define the nature of relations within that shared location. Increased intensity of college educated residents could be identifying a greater number of college educated residents within this hot spot cluster which would be consistent with Sassen's (2007) description of demands for post-industrial cities. Hot spot sections for the percentage of HOA area moved south and decreased by one section. Since HOAs are contracted during development and remain part of a property into perpetuity (McCabe 2011) they cannot decrease, and a growing cold spot cluster for HOA area along Troy southeast border suggests that the percentage of HOA area in Troy's northern sections is likely increasing.

Figure 25: Troy Optimized Hot Spot Analysis 2000

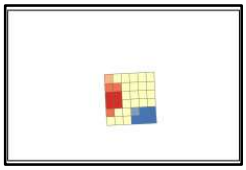
a. Mean Median Income



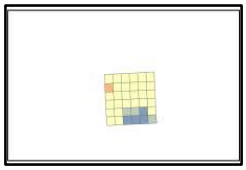
b. % non-white

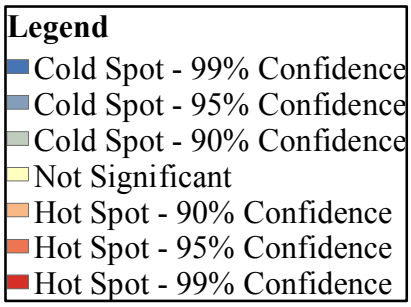


c. % College Degree



d. % HOA

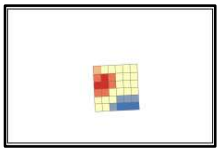




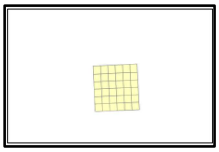
Optimized hot spot results for Troy in 2010 identified similar pattern locations of hot and cold spot clusters for median household income, college educated and non-white residents, and the percentage of HOA area but cluster intensity changed between 2000 and 2010. A greater number of hot spot sections were identified for the percentage of HOA area and median household income, which also increased in intensity while the percentage of college educated residents decreased in intensity. Hot spot sections are shared between median household income, percentage of HOA area, and college educated residents along Troy's western border. These findings indicate that sections where median household income was already significantly higher than average increased, and the number of sections where HOA area was higher than average expanded into neighboring sections. The hot spot cluster for the percentage of residents whose highest level of education is a college degree decreased in intensity, but is likely caused by a greater number of residents earning a college degree and is consistent with specialized demands of a post-industrial economy (Sassen 2007).

Figure 26: Troy Optimized Hot Spot Analysis 2010

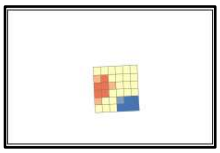
a. Mean Median Income



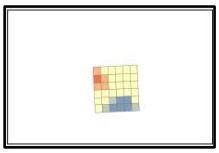
b. % non-white

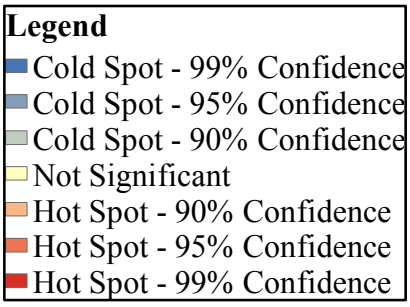


c. % College Degree



d. % HOA





Hot and cold spot clusters overlapped during each decennial census year from 1980 to 2010 and were illustrated in figures 23-26. Results also identified consistent spatial patterns of hot and cold spot clusters for each variable, which are illustrated in figures 27-30, from 1980 to 2010. Consistent findings that hot and cold spot patterns among and between median household income, non-white residents, residents 25 years and older with a college degree, and HOA area between 1980 and 2010 confirm hypothesis one, that characteristics of HOA area, household income, education level, and race display similar spatial patterns. Confirming consistent spatial patterns is significant and means that hot and cold spot locations are likely caused by some underlying spatial process and are not a result of complete spatial randomness. As explained above, an underlying spatial process explains why characteristics of a given variable form clusters in one location over another (Albrecht 2009; Clifford et al. 2016). Figures 27-30 illustrate hot and cold spot patterns of median household income, the percentage of non-white residents, residents 25 years and older with a college degree, and the percentage of HOA area from 1980-2010 showing pattern location consistency despite changes to hot and cold spot intensity and sections clustered.

Figure 27: Troy Optimized Hot Spot Results Income 1980-2010

a. 1980 b. 1990

c. 2000 d. 2010

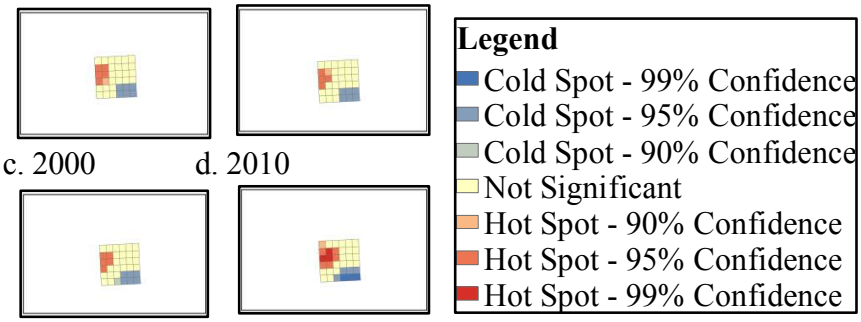


Figure 28: Troy Optimized Hot Spot Results % Non-White 1980-2010

a. 1980 b. 1990

c. 2000 d. 2010

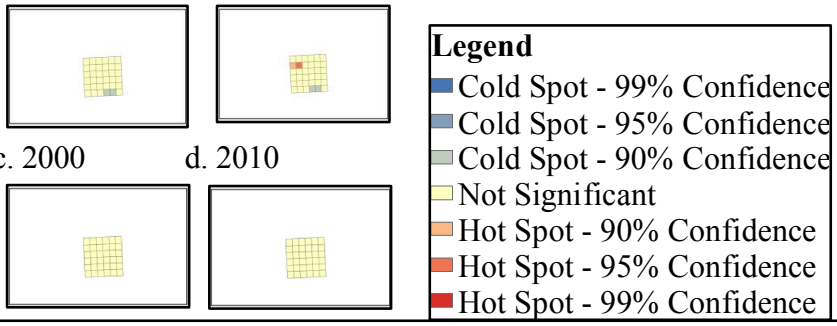


Figure 29: Troy Optimized Hot Spot Results % College Degree 1980-2010

a. 1980 b. 1990

c. 2000 d. 2010

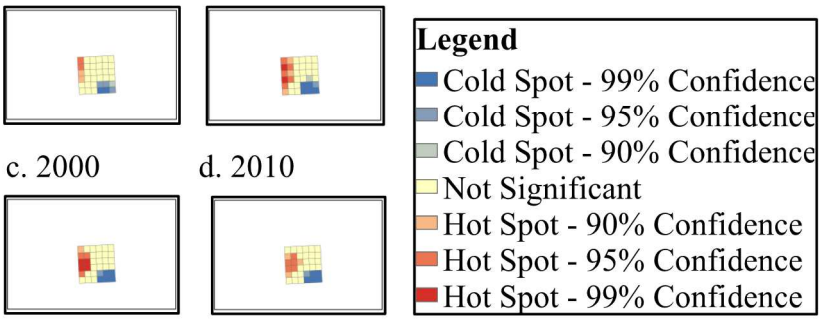
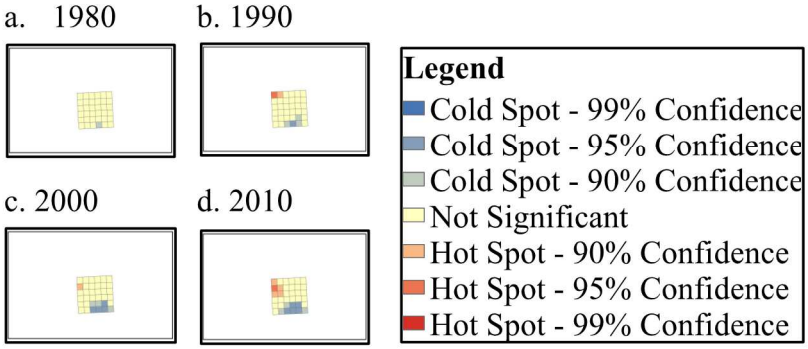


Figure 30: Troy Optimized Hot Spot Results % HOA 1980-2010



Optimized hot spot results consistently identified shared hot and cold spot sections for median income, percent college degree, and percent HOA. Results consistently identifying shared hot and cold spot sections for median household income, percent college degree, and the percentage of HOA area in similar locations from 1980-2010 suggests that median household income, college educated residents, and the percent age of HOA area are associated. Defining the nature of this association requires further confirmatory analysis (Clifford et al. 2016). Associations identified from locations of hot and cold spot clusters helped to shape hypothesis two, that HOA area, educational attainment, and race affect household income (H2) and hypothesis three, that those affects vary when examined by location across Troy (H3). Next I turn to a discussion of results from ordinary least squares and geographically weighted regression analysis used to test hypotheses two and three.

Ordinary Least Squares and Geographically Weighted Regression Analysis

Hypothesis two predicted that association governance, educational attainment, and race effects household income, and hypothesis three predicted that effects vary by location across Troy. As indicated in the previous section hypotheses two and three are related, and comparing

results will determine if variation in median household income across Troy is better explained globally, through relationships across the entire city, or locally, through relationships in each city section (Albrecht 2009; Ogneva-Himmelberger, Pearsall, and Rakshit 2009; Clifford et al. 2016). Hypothesis two relies on global estimates, which predict how well variation in median household income is explained by HOA area, educational attainment, and race across Troy, and was tested using a series of ordinary least squares (OLS) regression models. Hypothesis three relies on local estimates, which predict how well variation in median household income across Troy is explained by HOA area, educational attainment, and race of each city section, and was tested using geographically weighted regression (GWR) models.

Both hypotheses were tested using ArcGIS 10.4 spatial statistical analysis software. Testing hypotheses two and three was accomplished using a process similar to Ogneva-Himmelberger, Pearsall, and Rakshit (2009), where a series of four OLS regression models were conducted for each decennial census to assess global effects, followed by a series of four GWR models to assess local effects. Model's 1-4 are bivariate OLS estimates for each explanatory variable, and model 5 is a multivariate regression of the independent variables. Each variable coefficient represents global (OLS) estimates. As noted above OLS estimates explain how well median household income across Troy is explained by HOA area, college educated residents, and non-white residents. First, using OLS models each explanatory variable percent HOA (model 1), percent college degree (model 2), and percent non-white (model 3) were regressed on the dependent variable, median household income. Conducting separate OLS models for each explanatory variable provides a meaningful intercept value predicting the median income value when each explanatory variable equals zero. For instance, a predicted value for HOA area may not be statistically significant, but the absence of the explanatory variable may be statistically

significant. Next, all explanatory variables were regressed on mean median income in the same OLS model (model 4). Including all explanatory variables in a single model identifies the effect of each explanatory variable while controlling for all other explanatory variables (coefficient values), and predicts mean median income when all explanatory variables equal zero (OLS intercept).

Finally, all four models are repeated using GWR to predict the local effects, or effects of the explanatory variables on mean median income for each city section in Troy from 1980-2010. The local models (GWR) will indicate if variation in household income across Troy is better explained by variable characteristics in city sections, rather than global models (OLS) that assess variation explained by citywide characteristics. OLS and GWR results are compared by explanatory power (adjusted R^2 value) and overall model fit (Akaike Information Criterion (AICc)) and are documented in tables 11-14. Greater adjusted R^2 values indicate greater explanatory power while lower AICc indicates better model fit. Local models (GWR) were found to better explain income variation across Troy in each model from 1980 to 2010.

Results for Troy in 1980 shown in table 11 indicate statistically significant local variation in each model. In each model local estimates better explain variation in median household income, evidenced by greater adjusted R^2 values and lower AICc values in the GWR models. Greater explanatory power locally means that affects of HOA area, educational attainment, and race on median household income vary across sections and may result from qualities unique to that section. Differences in explanatory power between the global (OLS) and local (GWR) models suggest that local variation is an underlying spatial process affecting median income. In each bivariate model HOA area, college education, and race significantly affect household

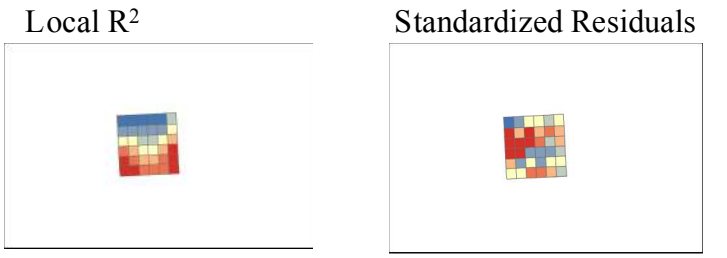
income, but race loses significance in model 4 when other explanatory variables are added to the model.

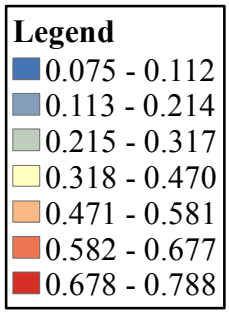
Table 11: OLS & GWR Models for Dependent Variable Median Income Troy 1980				
	Model 1	Model 2	Model 3	Model 4
% HOA/SUB Area	104.56*			58.33*
% College Degree		374.31*		250.49*
% NonWhite			1255.61*	457.07
OLS Intercept	28091.34*	19006.98*	24769.12*	18973.32*
OLS adj R^2	0.271*	.408*	0.143*	0.46*
OLS AICc	727.07	719.58	732.92	719.21
GWR adj R^2	0.798	0.807	0.774	0.729
GWR AICc	695.11	697.38	701.6	705.72

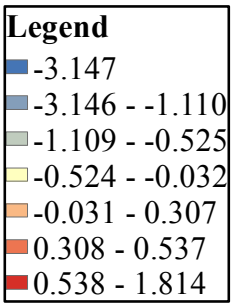
Statistically Significant at p<.01*

This finding is significant because it is showing that a section's median household income significantly increases (by $1,255.61 USD) as the percentage of non-white residents increases, but when HOA area and percentage of college-educated residents are controlled the increase decreases by two-thirds ($457.07USD). These findings indicate that HOA area, college education, and race affect median household income individually and collectively, but those affects are better explained in each section because section characteristics vary significantly. Local R^2 values and standardized residuals, shown in Figure 31, illustrate local variation in income explained by model 4 and randomly dispersed residuals. Only minimal residual clustering is present verifying that no local indicators of spatial autocorrelation (LISA) caused model misspecification.

Figure 31: Troy Spatial Variation in GWR Analysis of Income 1980







In 1990 results also indicate statistically significant local variation in each model and are shown in table 12. Again in each model local estimates better explain variation in median household income, evidenced by greater adjusted R^2 values and lower AICc values in the GWR models. Another similarity between results from 1980 and 1990 was that HOA area, residents with a college degree, and non-white residents significantly affected household income in each bivariate model, but the percentage of non-white residents was no longer significant when other explanatory variables were added to the model. This finding is interesting and shows Troy's growing non-white population, which increased by an average of 2.53% per section between 1980 and 1990, earning on average significantly more per section compared to white residents. Almost the exact opposite when juxtaposed to findings from Detroit. Local R^2 values and standardized residuals, shown in Figure 32, illustrate local variation in income explained by model 4 and randomly dispersed residuals, verifying that no local indicators of spatial autocorrelation (LISA) caused model misspecification. Explanatory variables in model 4 explain 59% of the variance in the global model (OLS adjusted R^2) and 78% of the variance in the local

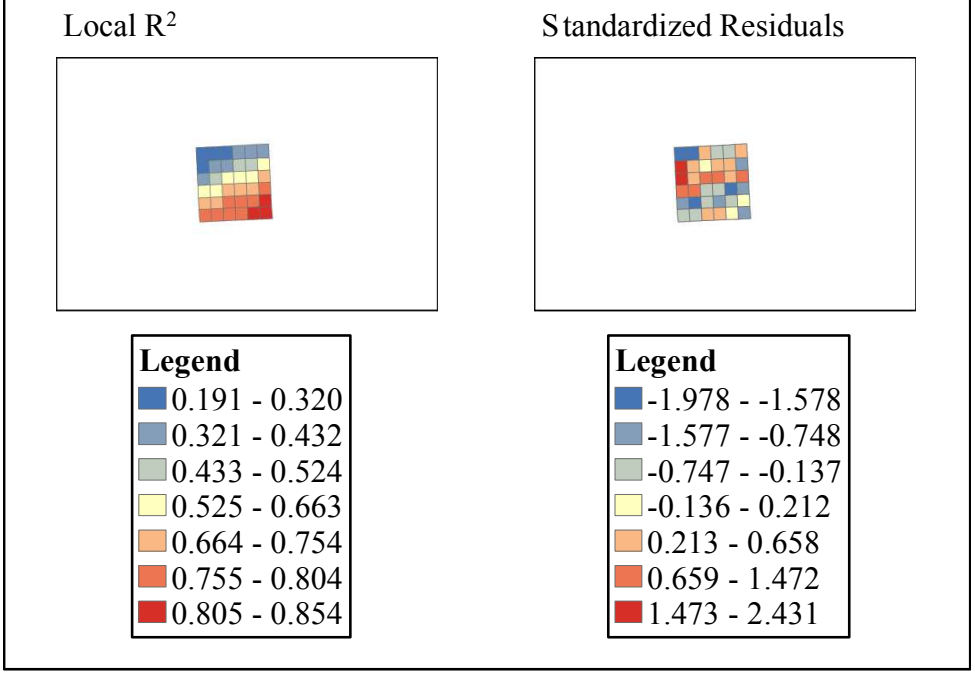
model (GWR adjusted R^2). One major difference between 1980 and 1990 is where local R^2 values explain household income variation, and in 1990 the variance explained locally shifts and a greater portion of the variance is explained in Troy's southeast sections. Troy's southeast sections border less wealthy neighboring communities and where cold spot sections were identified for household income. Locally income variance is better explained where household income, HOA area, and college educated and non-white residents are significantly lower than average. The local model (AICc= 756.14) was found to better fit the data than the global model (AICc= 770.41).

Table 12: OLS & GWR Models for Dependent Variable Median Income Troy 1990

	Model 1	Model 2	Model 3	Model 4
% HOA/SUB Area	275.91*			136.38*
% College Degree		781.01*		545.11*
% NonWhite			2183.16*	335.06
OLS Intercept	43917.22*	24408.61*	38122.81*	25649.17*
OLS adj R^2	.387*	.554*	.239*	.594*
OLS AICc	782.17	771.49	798.96	770.41
GWR adj R^2	0.776	0.824	0.789	0.777
GWR AICc	754.9	752.1	761.96	756.14

Statistically Significant at p<.01*

Figure 32: Spatial Variation in GWR Analysis of Income 1990



Results for Troy in 2000 display both similarities and differences to results from 1980 and 1990 and are shown in table 13. Again greater adjusted R^2 values and lower AICc values in the GWR models indicate that local estimates better explain variation in median household income in each model. In 2000 HOA area and college educated residents still significantly affected income in each model, but the percentage of non-white residents was no longer significant in the bivariate model and negatively affected household income in the multivariate model but was not significant. This means that higher percentages of non-white residents increase household income per section, but when HOA area and college educated residents are controlled non-white residents negatively affect section income but not in a statistically significant way. This change is interesting because the percentage of non-white residents per city section more than doubled between 1990 (7.64%) and 2000 (15.71%). Figure 33 illustrates local variation in income explained by model 4 and randomly dispersed residuals, verifying that no local indicators of spatial autocorrelation (LISA) caused model misspecification. Similar to

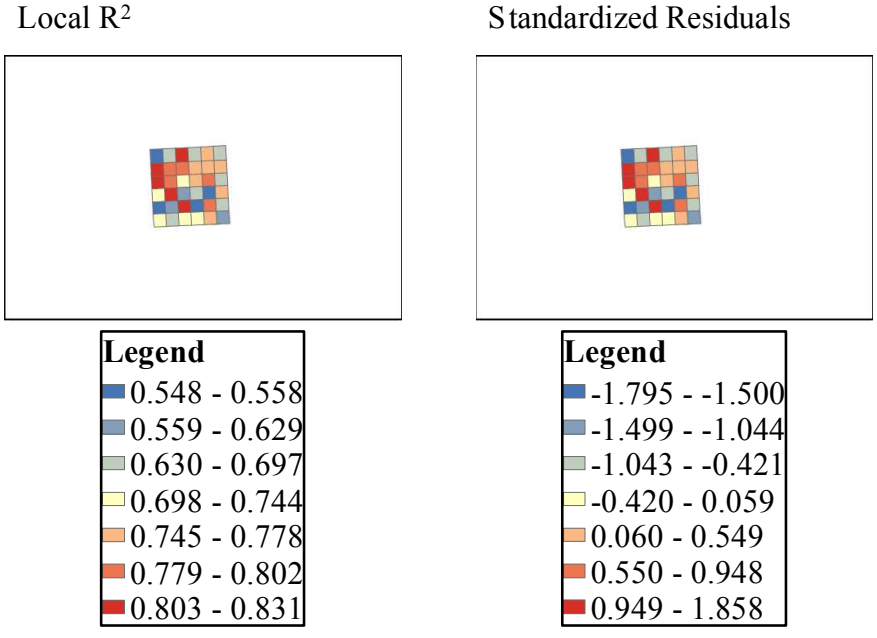
1990, local R^2 values explain household income variation, and a greater portion of the variance is explained in Troy's southeast sections, where Tory borders less wealthy communities. Explanatory variables in model 4 explain 72% of the variance in the global model (OLS adjusted R^2) and 82% of the variance in the local model (GWR adjusted R^2).

Table 13: OLS & GWR Models for Dependent Variable Median Income Troy 2000

	Model 1	Model 2	Model 3	Model 4
% HOA/SUB Area	457.2*			246.18***
% College Degree		1221.91*		921.94***
% NonWhite			590.82	-296.46
OLS Intercept	59452.96*	19988.83*	70075.86*	28502.38***
OLS adj R^2	.514*	.622*	0.005	0.722*
OLS AICc	798.14	789.06	823.95	781.19
GWR adj R^2	0.822	0.802	0.814	0.821
GWR AICc	771.49	772.04	780.68	772.03

Statistically Significant at p<.01*

Figure 33: Troy Spatial Variation in GWR Analysis of Income 2000



OLS and GWR model results for Troy in 2010, shown in table 14, indicate statistically significant local variation in each model. Results for 2010 are very similar to results from 2000,

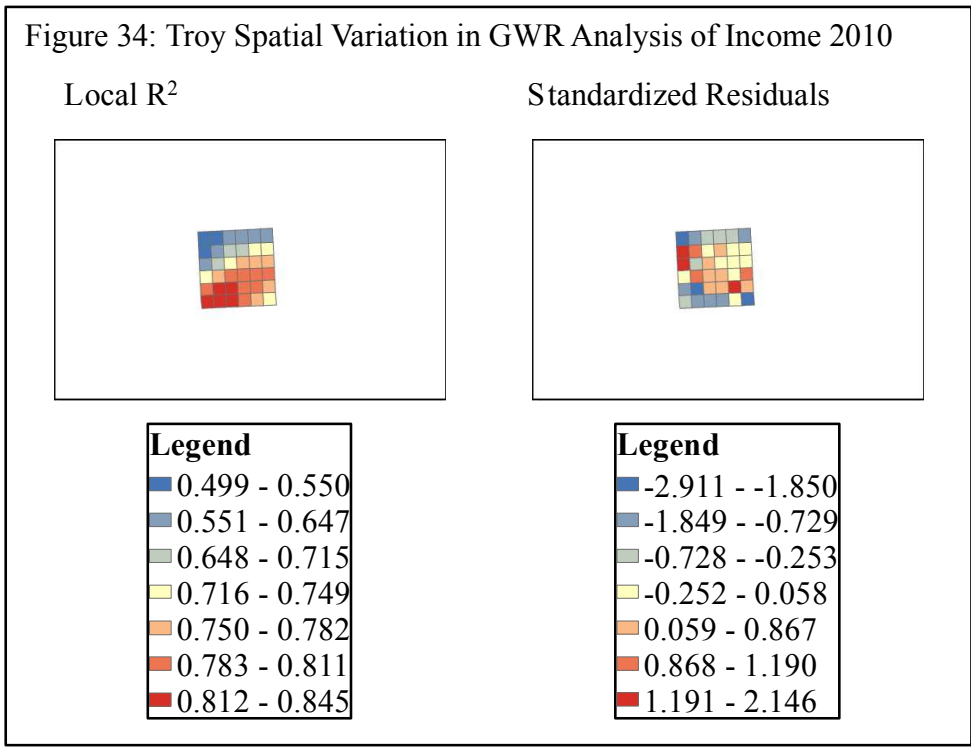
with HOA area and college educated residents still significantly affected income in each model, but the percentage of non-white residents was no longer significant in the bivariate model and negatively affected household income in the multivariate model but was not significant. Again, as specified in results for 2000, higher percentages of non-white residents increased household income per section, but when HOA area and college educated residents are controlled non-white residents negatively affect section income but not in a statistically significant way. The percentage of non-white residents increased by 7.69% per section between 2000 (15.71%) and 2010 (23.4%), and affects on income remain insignificant in the global model (OLS). Greater adjusted R^2 values and lower AICc values in the GWR models indicate that local estimates better explain variation in median household income in each model. In model 4 global estimates account for 73% of the variance and local estimates account for 85% of the variance, meaning that income variation across Troy is best explained by unique section characteristics. Local variation in income explained by model 4 and randomly dispersed residuals, verifying that no local indicators of spatial autocorrelation (LISA) caused model misspecification, are shown in figure 34.

Table 14: OLS & GWR Models for Dependent Variable Median Income Troy 2010

	Model 1	Model 2	Model 3	Model 4
% HOA/SUB Area	492.29*			213.92*
% College Degree		1327.26*		1118.41*
% NonWhite			366.14	-483.14
OLS Intercept	68898.27*	18339.03	82931*	31335.27*
OLS adj R^2	.513*	.640*	-0.011	.730*
OLS AICc	804.62	793.72	830.9	786.45
GWR adj R^2	0.778	0.727	0.723	0.852
GWR AICc	787.05	788.21	795.97	781.41

Statistically Significant at p<.01*

Figure 34: Troy Spatial Variation in GWR Analysis of Income 2010



Results from OLS regression analyses between 1980-2010 confirmed hypothesis two that HOA area, educational attainment, and race affect household income. Consistently HOA area and college educated residents positively affected income across Troy in each model from 1980 and 2010. Race, measured as the percentage of non-white residents, positively affected household income from 1980-1990, but lost significance when other explanatory variables were added to the model (model 4) and negatively affected household income from 2000-2010 but was not statistically significant. In each analysis from 1980- 2010 GWR models were shown to better explain variation in household income across Troy, and confirmed hypothesis three that the affects of HOA area, educational attainment, and race on household income vary by spatial location. Literature from previous research determined that HOAs can separate residents by social class characteristics creating class based spatial arrangements across cities and/or create unique enclaves separating specific groups of residents (McKenzie 1994; Blakely and Snyder

1997; Cashin 2001; McCabe 2011). Based on literature and findings from optimized hot spot analysis, indicating that characteristics of HOA area, educational attainment, race, and household income vary across Troy, and OLS and GWR analyses, indicating that income variation is better explained locally, grouping analysis was performed to better understand how characteristics of HOA area, educational attainment, race, and household income vary across Troy city sections. The following subsection summarizes results from grouping analysis.

Grouping Analysis

Hypothesis four predicted that association governance varies with population characteristics and forms distinct enclaves. Optimized hot spot results found that areas where household income was significantly higher than average were also areas where association governance was significantly higher. OLS results found associations between governance associations and income that were confirmed by GWR analysis to vary by spatial location. In other words, the association varies across sections of Troy. Performing grouping analysis will indicate if characteristics of association governance, educational attainment, race, and median household income form groups in areas of Troy where variable characteristics are distinctly different.

Grouping analysis was conducted using ArcGIS10.4 spatial statistics software. Grouping analysis is a classification strategy that finds natural clusters by organizing similar features into groups, and separating groups by differences among features based on criteria specified (Assuncao et al. 2006; Jain 2009). Grouping Analysis identified unique groups, or sections with similar variable values, and variable characteristics that best differentiate each group in Troy

from 1980-2010. The optimal number of groups is determined by the pseudo F-statistic, and measures similarity within groups and differences between groups using a K Means algorithm (Assuncao et al. 2006; Jain 2009). The K Means algorithm groups variable features by maximizing similarities within groups and maximizing differences between groups, using the K means algorithm does not require spatial constraints (Assuncao et al. 2006; Jain 2009). Utilizing the K Means algorithm without spatial constraints allows unique groups to be identified in any section of Troy and does not require groups to cluster together. The variable that differentiates groups most effectively, or best distinguishes one group from the other groups, is determined by the highest R^2 value. Grouping analysis results from 1980-2010 are summarized in results tables 15-18 and figures 35-38 to illustrate findings.

Results for 1980 discovered three unique groups with attributes of HOA area best differentiating between groups ($R^2 = 0.802$). Meaning that based on how HOA area varies spatially across Troy household income, college educated residents, and non-white residents naturally form three distinct groups. Group 1 is comprised of sections with the highest percentage of HOA area (64.18%), the highest average income ($34,626.46 USD), and the highest percentage of residents 25 years and older with a college degree (38.69%). On the other hand, group 2 is comprised of sections where no HOAs are present, below average income ($23,474.37 USD), percentage of residents 25 years and older with a college degree (20.4%), and percentage on non-white residents (2.91%). Table 15 provides the mean value of each variable in the group, their corresponding R^2 values, and a summary of each group. Group three's composition of household income ($33,505.37 USD), college educated residents (35.17%), and non-white residents (6.83%) is similar to group 1, but has less HOA area (9.35%). In 1980 Troy displayed three distinctly different spatial groups based on high, middle, and low percentages of

HOA area, consistent with HOA literature asserting that HOAs divide people and places by social class (McKenzie 1994; Blakely and Snyder 1997; Cashin 2001; McCabe 2011). Figure 35 illustrates how these three non-continuous groups spatially across Troy.

Figure 35: Troy Grouping Analysis 1980

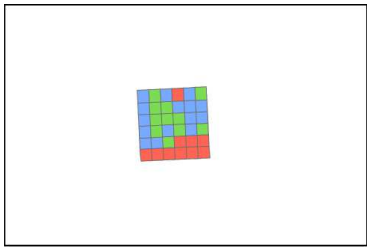


Table 15: Troy Grouping Analysis 1980								
	% HOA		Income (USD)		% C. Degree		% Non-White	
	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2
Overall	**29.6**	**0.802**	**31,186.10**	**0.571**	**32.54**	**0.479**	**5.11**	**0.529**
	Mean	Share	Mean	Share	Mean	Share	Mean	Share
Group 1	64.18	0.645	34,626.46	0.636	38.69	0.77	5.31	0.779
Group 2	0	0	23,474.37	0.481	20.4	0.614	2.91	0.51
Group 3	9.35	0.453	33,505.37	0.562	35.17	0.491	6.83	0.556

Results for 1990 differed from 1980 by identifying six unique groups and college-educated residents best differentiating between groups ($R^2 = 0.911$). Groups in 1990 are differentiated by the percentage of college-educated residents, but they display an interesting spatial pattern. Groups 3, 4, and 5 are comprised of the highest percentage of college educated residents and the highest income groups, with above average HOA area, and are located along Troy's western and wealthiest border. Group 1 is comprised of the lowest percentage of college educated residents, has the lowest median household income, the lowest percentage of HOA area, and the lowest percentage of non-white residents, and are located along Troy's southeastern

border shared with less wealthy communities. Despite results identifying double the number of groups in 1990 compared to 1980 social class distinctions are still present among groups and group locations. Table 16 details the six groups identified in 1990, which are illustrated in figure 36 and depict group locations across Troy and are not continuous groups.

Figure 36: Troy Grouping Analysis 1990

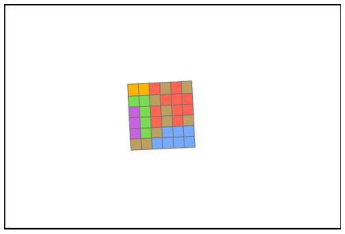


Table 16: Troy Grouping Analysis 1990

	% HOA		Income (USD)		% C. Degree		% Non-White	
	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2
Overall	39.44	0.874	54,799.76	0.839	38.91	0.911	7.64	0.657
	Mean	Share	Mean	Share	Mean	Share	Mean	Share
Group 1	2.76	0.14	31,980.40	0.179	17.16	0.25	3.87	0.453
Group 2	63.02	0.291	59,309.17	0.26	36.08	0.272	7.38	0.428
Group 3	45.08	0.299	71,897.68	0.459	54.12	0.151	13.09	0.215
Group 4	100	0.296	59,115.10	0.012	60.53	0.006	11.14	0.009
Group 5	69.22	0.218	74,774.09	0.388	58.66	0.098	5.5	0.158
Group 6	11.35	0.196	50,421.76	0.312	39.14	0.35	7.75	0.537

Results for 2000 only identified two unique section groups best differentiated by the percentage of HOA area (R^2 =0.781). Group 1 is comprised of sections having the highest percentages of HOA area (66.98%), above average incomes ($92,169.14), percentage of residents 25 years and older with a college degree (55.26%), and percentage of non-white residents (16.82%). Group 1 is differentiated by above average characteristics. Group 2 is comprised of sections having low percentages of HOA area (6.68%), lower than average incomes ($59,217.07), low percentages of residents 25 years and older with a college degree

(38.09%), and a slightly less than average percentages of non-white residents (13.95%). Group 2 is differentiated by below average characteristics. Similar to 2000 findings group 2 which displays below average characteristics of HOA area, household income, college educated and non-white residents are primarily located along Troy's southeastern border shared with less wealthy communities. Table 17 details both groups identified in 2000, which are illustrated in figure 37 and depict group locations across Troy and are not continuous groups.

Figure 37: Troy Grouping Analysis 2000

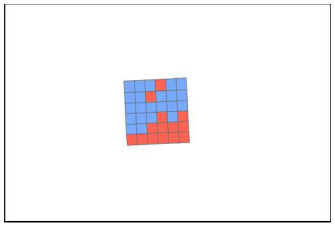


Table 17: Troy Grouping Analysis 2000

	% HOA		Income (USD)		% C. Degree		% Non-White	
	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2
Overall	**43.53**	**0.781**	**79,354.45**	**0.59**	**48.58**	**0.378**	**15.7**	**0.046**
	Mean	Share	Mean	Share	Mean	Share	Mean	Share
Group 1	66.98	0.718	92,169.14	0.607	55.26	0.505	16.82	0.652
Group 2	6.68	0.355	59,217.07	0.572	38.09	0.827	13.95	1

Three unique groups were identified in 2010, and section groups were best differentiated by the percentage of HOA area (R^2 =0.836). Sections in group 1 display above average characteristics of HOA area (71.83%), household incomes ($105,651.99), percentages of residents 25 years and older with a college degree (61.95%), and an average percentage of non-white residents (23.33%). Group 1 is comprised of the largest number of city sections and are located throughout the middle are north sections of Troy. Group 2 is comprised of sections displaying mostly average and below average characteristics and are scattered throughout Troy with most located in southern sections and two northern sections. Group 2 sections display an

average percentage of residents 25 years and older with a college degree (56.87%), slightly less than average incomes ($82,892.24), a slightly above average percentage of non-white residents (28.72%), and below average percentage of HOA area (13.21%). The final unique group identified for 2010 is characterized by below average characteristics, and are located along Troy's southeastern border shared to less wealthy communities. Group 3 sections display below average percentages of HOA area (4.22%), residents 25 years and older with a college degree (28.62%), non-white residents (15.66%), and below average incomes ($54,874.49). Table 18 details both groups identified in 2000, which are illustrated in figure 38 and depict group locations across Troy and are not continuous groups.

Figure 38: Troy Grouping Analysis 2010

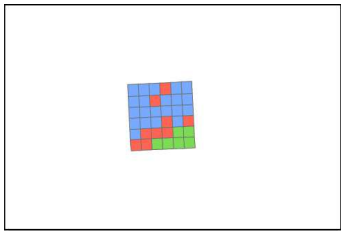


Table 18: Troy Grouping Analysis 2010

	% HOA		Income (USD)		% C. Degree		% Non-White	
	Mean	R^2	Mean	R^2	Mean	R^2	Mean	R^2
Overall	**45.91**	**0.836**	**91,499.14**	**0.687**	**55.12**	**0.752**	**23.4**	**0.241**
	Mean	Share	Mean	Share	Mean	Share	Mean	Share
Group 1	71.83	0.526	105,651.99	0.46	61.95	0.417	23.33	0.602
Group 2	13.21	0.393	82,892.24	0.386	56.87	0.401	28.72	0.829
Group 3	4.22	0.193	54,874.49	0.369	28.62	0.304	15.66	0.56

Grouping analysis confirmed hypothesis four that association governance varied spatially with educational attainment, race, and household income characteristics forming distinct groups. Consistently sections were grouped by similar characteristics that displayed differing social class and spatial arrangements across Troy. These findings support previous findings that HOAs can

territorialize space into different social classes (McKenzie 1994; Blakely and Snyder 1997; Cashin 2001). Characteristics of HOA area best defined groups in 1980, 2000, and 2010, but in 1990 when groups were defined by residents with a college degree, group locations bordering neighboring communities highlighted income and HOA area distinction. Next, chapter six will briefly summarize what these results mean for residents of Detroit and Troy, this dissertations academic contributions, theoretical and policy implications, limitations, and future research goals.

CHAPTER SIX: CONCLUSIONS, CONTRIBUTIONS, AND IMPLICATIONS

Residential governance associations have served various interests both private and public from their ability to create private utopian communities (McKenzie 1994), serve as instruments separating social classes (Blakely and Snyder 1997; Cashin 2001), institutionalize social control (Sugrue 2014), create neoliberal markets (Fraser et al. 2015), and membership networks (Community Associations Institute 2017) to support and sustain flexibly produced governance structures to absorbing municipal costs and maintenance of utilities, roadways, and streetlights (McCabe 2011; McLeod 2011). Yet associations face few restrictions and/or requirements from local, state, or federal government and fewer resources are available to residents regarding associations, despite their increasing value as they continue to transform and shape development practices. Findings from Detroit and Troy represent the transformative nature of governance expressed through residential governance associations, and its ability to attract, retain, and exclude residents. Residential governance associations present opportunities for community redevelopment and restructuring to help struggling municipalities better provide and serve the public good.

This final chapter begins by summarizing research findings from Detroit and Troy, Michigan. Then I discuss how governance commodification and residential governance associations contribute to existing disciplinary knowledge. Next, theoretical implications of governance commodification and residential governance associations are discussed, followed by policy implications for improving governance structures to benefit the public good. Finally I discuss limitations of data used for this research and goals for improving future research. Next, I

discuss how governance commodification contributes to existing sociological knowledge and particularly for social justice.

Residential Governance Associations in Detroit and Troy

Detroit's history and suburban development has been riddled with class and racial segregation serving to distance residents both socially and geographically (Sugrue 2014; Vojnovic and Darden 2013). Findings from this research suggest that governance associations have had a role in imposing social and spatial distance between residents in Detroit and Troy. Detroit and Troy were developed differently, but both cities experienced economic transition and social restructuring. Detroit transitioned from a diverse global city at the center of automotive manufacturing and technology to declaring the nation's largest municipal bankruptcy (Binelli 2012; Stiglitz 2013). Troy transitioned from a rural farming community to a diverse economically advantaged city employing thousands in managerial and producer services (Campbell 2004; City of Troy 2017). Despite drastic differences throughout development and transition governance associations shaped Detroit and Troy's residential landscapes.

Finding consistent spatial patterns, hot and cold spots, of governance associations, household income, college educated residents, and race in both Detroit and Troy identified that similar characteristics of these variables clustered together when those characteristics are above or below city averages. Cluster patterns also displayed spatial distance between high and low value clusters. In other words, the extremely wealthy and extremely poor were not located in neighboring sections. These spatial patterns were consistent from 1980- 2010 displaying few variations despite drastic decline in Detroit and growth in Troy. Findings not only indicate

distance between each city's extreme qualities of governance associations, household income, college educated residents, and race, but that distance remains consistent over time. Some clusters of governance associations, household income, college educated residents, and race were found to overlap, for instance, consistently high percentages of governance associations and high household income values were located in the same section or groups of sections.

This research found that consistent spatial patterns of governance associations, household income, college-educated residents, and race that remained over time were not random patterns. These patterns resulted from relationships between governance associations, household income, college educated residents, and race that were expressed spatially through residential location across Detroit and Troy. However, relationships between governance associations, household income, college-educated residents, and race differed between Detroit and Troy and across Detroit and Troy. For instance, governance associations in Detroit are both neighborhood associations and HOAs, but only HOAs are present in Troy. Neighborhood associations are voluntary and could dissolve when members lost interest or moved making them less stable. HOAs are involuntary and contractually linked to residential property and by nature have an organizational structure that is more permanent (McCabe 2011).

A greater number of voluntary associations in Detroit enabled greater fluctuation in the relationships between governance associations and household income, college-educated residents, and race. This fluctuation also affects how these relationships are expressed spatially across city sections. Relationships between governance associations, household income, college-educated residents, and race were more stable in Troy where HOAs are the only form of governance association and consistently increased area percentage each year from 1980- 2010. Despite Detroit exhibiting greater association fluctuation and Troy exhibiting association

stability relationships between governance associations, college-educated residents, race, and household income varied across each city and were better explained by characteristics of city sections. Table 19 shows the average percentage and standard deviation of section area governed by HOAs and neighborhood associations in Detroit and Troy from 1980-2010.

Table 19: Association Area (%) in Detroit and Troy 1980-2010

	1980		1990		2000		2010	
Variable Name	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Detroit								
% HOA Area	4.69	16.05	5.16	16.22	5.43	16.28	5.42	16.28
% Neighborhood Association	5.98	13.83	7.63	14.62	8.71	16	6.14	13.85
Troy								
% HOA/Sub	29.60	32.90	39.44	34.35	43.53	33.25	45.91	33.70

When governance associations and household income, college-educated residents, and race were examined by characteristics exhibited in each section distinct groups were identified displaying similarities between Detroit and Troy from 1980 and 2010. The number of groups identified varied with section characteristics, but consistently governance association characteristics defined group classification. This means that the amount of governance association area defined a city section's uniqueness in both Detroit and Troy. In Detroit high amounts of governance association area and high household incomes were comprised section groups regardless of racial composition and amount of college-educated residents. In Troy above average, average, and below average characteristics of HOA area, household income, college-educated residents, and racial composition defined section groupings. Additionally, degrees of characteristics remained in consistent section locations in Troy from 1980-2010. Detroit displayed greater fluctuation and was likely caused by association mobility compared to Troy where HOAs are stable and consistently increased each year and displayed less variation in

group characteristics and section locations. Stability exhibited in Troy was expressed spatially as upper and lower class residents remained in fixed locations with upper class residents located in northwestern sections and lower class residents located in southeastern sections. These findings contribute to existing knowledge of governance associations but also speak to the commodifiable nature of governance. Next, I discuss this dissertation's contributions to the discipline.

Contributions to the Discipline

This dissertation accepts that residential governance associations exemplify commodified governance and asserts that governance commodification is worthy of sociological inquiry because it is used to side-step democracy while creating and defending inequality. Governance commodification is best illustrated where bodies of governance appear universal in their hierarchical structures and public-private partnerships are flexibly produced and consumed with access determined by one's social relations. Residential governance associations are examples of governance commodification, where flexibly produced public-private partnerships are consumed altering relations between local government and residents who gain some degree of governing capacity. Results from Detroit and Troy depict how social relations determine access to governing capacity, as the significance of race differed between Detroit and Troy.

Operationalizing commodified governance through governance associations provides a deeper understanding of governance structures by creating a measureable unit of analysis. Governance is difficult to measure, as noted in chapter three, due to its public-private composition. Residential associations are linked to geographically fixed private property and legally govern residents' property and use through contractual agreements (McKenzie 1994;

McCabe 2011). Research for this dissertation measured residential associations through the amount of private property they govern. Residential associations exemplify governance commodification because governing capacity is purchased with property ownership demonstrating governing capacity's exchange-value, and the existence of a residential governance market is supported by associations consistently increasing over the study period. Table 20 displays residential subdivision and association area and association area as a percentage of subdivision area, and governance association area increased in both Detroit and Troy. Governance associations in Detroit increased when subdivision area did not, meaning that residents were forming associations to govern existing property. Both subdivision area and association area in Troy increased, and association area increased as much or more than subdivision area. If a market did not exist residential association area would not increase because residents would not purchase property governed by associations when subdivisions without associations are present. In both Detroit and Troy association area only accounts for a portion of each city's total subdivision area, and demonstrate a demand for association governance through increasing area.

Table 20: Association Governance in Detroit & Troy City Sections 1980-2010

	1980		1990		2000		2010	
Variable Name	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Detroit								
Subdivision Area	0.22	0.17	0.22	0.17	0.22	0.17	0.22	0.17
HOA Area	0.01	0.04	0.01	0.04	0.01	0.04	0.01	0.04
N. Association	0.02	0.05	0.02	0.05	0.03	0.06	0.02	0.06
% HOA Area	4.69	16.05	5.16	16.22	5.43	16.28	5.42	16.28
% N. Assoc.	5.98	13.83	7.63	14.62	8.71	16	6.14	13.85
Troy								
Subdivision Area	0.41	0.24	0.46	0.26	0.50	0.28	0.51	0.28
HOA Area	0.16	0.21	0.23	0.24	0.28	0.25	0.29	0.26
% HOA/Sub	29.60	32.90	39.44	34.35	43.53	33.25	45.91	33.70

The data collected for this analysis is a sociological contribution, and shows that residential association governance can be measured and researched empirically, have exchange-value, and a market with demand for residential association governance. Additionally, data collected shows that association governance has transitioned from voluntary to involuntary governance associations and is exemplified in differences between voluntary neighborhood associations and involuntary HOAs. The distinction between neighborhood associations and HOAs exemplifies varying degrees of governing capacity and contractual obligations required to access and maintain governing capacity. Voluntary neighborhood associations are comprised of individual homeowners linked by public roads and alleyways, but involuntary HOAs are organizations that own and govern roads, sidewalks, utility connections, and common spaces. HOAs have greater governing capacity from their formalized and involuntary organizational structures, but both have an ability to shape the built and social environment. Another major contribution of this research demonstrates that as the market for residential governance associations expanded, demand shifted from voluntary to involuntary associations, but embedded social relations still shaped the social geography of wealthy and poor residents in both Detroit and Troy. Increasing importance of association governance from 1980-2010 also provides a local context for major economic, political, and technological change occurring globally during that time period.

This research also indirectly contributes to theories of neoliberal globalization and inequality. Data for this research spans from 1980 to 2010, and the period from 1980 to 2000 is known as an era of rapid deregulation and globalization (Stiglitz 2003; Harvey 2005; Massey 2009; McMichael 2012). As discussed in chapter one the globalization era provides the historical and social context from which to examine Detroit and Troy sociologically through the

dominant social processes occurring during this study period. Rapidly increased use and spread of communication, transportation, and technology during the globalization era left lasting economic and social affects, making globalization a profound instigator of social change (Agnew 1996; Jessop 2002; Stiglitz 2003; McMichael 2012). Detroit and Troy's economic histories parallel studies of economic globalization, described as transitions from industrial production to centers for producer services (Sassen 2006, 2007). Detroit and Troy provide a local context of such transitions as Detroit experienced rapid deindustrialization and Troy rapid growth and expansion of a service sector economy discussed at length in chapter two. Association governance data and analyses within and between Detroit and Troy contribute to sociological literature on neoliberal globalization by providing a local context.

Globalization legitimated global governance bodies, such as the WTO, as necessities to bridge jurisdictions and regulate markets (Stiglitz 2003; Harvey 2005; McMichael 2012). Local governments and residents legitimated association governance as a means of providing services governments were unable to provide (McKenzie 1994; MacLeod 2011). Both global and association governance are neoliberal bodies, both rely on autonomous self-governance where members are responsible for waging and resolving disputes (McKenzie 1994; McMichael 2012). Global and association governance are two sides of the same coin, they are both legitimated through their ability to perform functions beyond government reach, and are neoliberal governance structures of autonomous self-governance only responsible to members.

Globalization literature acknowledges growing inequality under neoliberal governance structures both within and between nations (Nederveen Pieterse 2002; Stiglitz 2003; Harvey 2005; Massey 2009; McMichael 2012). Likewise urban scholarship notes growing differences between urban and suburban landscapes as well as growing inequality within and between urban

and suburban landscapes (McKenzie 1994; Cashin 2001; MacLeod 2011). Research has linked growing urban inequality to political fragmentation, and the growing number of private governance structures (Cashin 2001; Ben-Joseph 2004; MacLeod 2011; Vojnovic and Darden 2013). This research empirically linked association governance to growing urban inequality both between and within Detroit and Troy from 1980 to 2010.

Analyses of Detroit consistently found city sections (approximately one square mile) with the highest percentages of association area to have the highest incomes and higher than average percentages of white residents from 1980 to 2010. Findings also displayed spatial distance between clusters of the highest and lowest income sections. Findings from Detroit displayed variation across city and displayed differences between voluntary neighborhood associations and involuntary HOAs. Neighborhood associations and HOAs in Detroit were both associated with high income and higher percentages of white residents that were distinctly different than sections with few or no associations, but neighborhood association area displayed greater fluctuation while HOA area increased consistently and remained geographically fixed. Analyses of Troy displayed a sharper contrast between sections with and without HOAs, and signified a transition toward HOAs and away from neighborhood associations, as only HOAs were present in Troy. Finding only HOAs in Troy provides empirical support for urban governance literature insisting governance transformations occurred. Troy displayed greater inequality with the highest and lowest income levels, percentage of HOA area, and educational attainment were found in the same city sections, demonstrating disparity between sections with and without HOA governance. Findings from Detroit and Troy support the ability to territorialize urban space through governance and that governance has transformed (Harvey 1989; MacLeod 2011).

Additionally Troy's spatial representation of governance and social disparities differed from Detroit. Detroit's spatial representation of governance and associated disparities was not polarized, meaning that sections where income and association area are high could be located next to a section with opposite characteristics. Troy displayed more polarized differences between sections where income levels, percentage of HOA area, and educational attainment were high and low. Sections where income, HOA area, and education were high were located in Troy's western and northern sections, while sections where income, HOA area, and education were low were located in Troy's southern and eastern sections. Troy's western and northern boarders are shared with wealthier communities, while its eastern and southern boarders are shared with poorer communities. Polarized inequality displayed in Troy is consistent with literature on growing inequality through neoliberal globalization (Nederveen Pieterse 2002; Massey 2009) and provides empirical evidence in a local context.

These findings also identified inequality between Detroit and Troy that further supports political fragmentation literature. Inequality between Detroit and its neighboring suburbs has been well documented (Darden and Kamel 2000; Binelli 2012; Stiglitiz 2013; Sugrue 2014), but this analysis extends previous research by quantifying association governance in Detroit and its suburb Troy and providing a fixed geographic unit of analysis (square mile city sections). Research has shown disparities between urban cores and surrounding suburbs coinciding with new neoliberal governance strategies (Harvey 1989; MacLeod 2011; Vojnovic and Darden 2013). Findings from Detroit and Troy provide empirical support by quantifying the urban suburban disparity between income and governance associations using city section averages. Table 21 displays differences in income and association governance area from 1980 to 2010. In Each decade from 1980 to 2010 Troy displays more than double Detroit's city section income

average and percentage of governance associations. Increasing inequality between Detroit and Troy further contextualizes the local impacts of neoliberal globalization, noted for increased within-country inequality (Massey 2009).

Table 21: Section Income & Governance Differences in Detroit & Troy 1980-2010				
	1980	1990	2000	2010
	Mean	Mean	Mean	Mean
Detroit				
Income (USD)	14,859.84	20,677.49	29,454.74	29,304.45
% HOA	4.69	5.16	5.43	5.42
% N. Assoc.	5.98	7.63	8.71	6.14
Troy				
Income (USD)	31,186.00	54,799.76	79,354.45	91,499.14
%HOA	29.60	39.44	43.53	45.91
Difference (USD)	16,326.16	34,122.27	49,899.71	62,194.69

An interesting difference between Detroit and Troy was the changing significance of racial composition. In Detroit sections where association governance, income, and educational attainment were high had above average percentages of white residents, but in Troy sections where income, HOAs, and education were high also had higher percentages of non-white residents. Differing significance of racial composition between Detroit and Troy is interesting considering the differences in racial composition between Detroit and Troy. Table 10 displays racial composition by city section for Detroit and Troy. Detroit's population is predominantly African-American with a small fraction of the population representing individuals who identify as a race other than African-American and/or white. Troy's population is predominantly white with African-Americans accounting for a small fraction of the population, and residents who identify as a race other than African-American or white accounting for an increasingly larger percentage of the population (1980 = 4.19%, 1990= 6.37%, 2000= 13.72%, 2010= 19.57%).

Finding an association between non-white residents and increased HOA area and higher income, and educational attainment in Troy could be a result of its racial composition. Globalization has been found to contribute to greater cultural and racial diversification through the spread of transnational corporations and the international labor market (Ritzer and Ryan 2002; Sassen 2007). Although this data cannot prove that these findings are related to globalization, they are consistent with literature identifying similar trends during globalization. Findings from Detroit and Troy contribute to sociological discourse on governance by quantifying the affects of commodified governance.

Commodified governance expands the governance narrative beyond domination or harmonization and towards a narrative of distinction. Current literature suggests unequal benefits and consequences of governance result from relations of domination or governance failure (Stoker 1998; Macleod 2011), but governance commodification highlights an ability to achieve goals with exclusive benefits despite direct or indirect consequences for others. Commodified governance is worthy scholarship because it identifies areas of governance systems needing further evaluation to address and prevent inequality and may further explain accentuated economic, spatial, and social polarization. Differences identified between governance associations structures in Detroit and Troy reflects social class differences between the cities. During each census examined median household incomes recorded in Troy were more than double those recorded in Detroit during the same year. Similarly governance association area in Troy consistently increased each census year more than doubling association area in Detroit where association area fluctuated. Table 21 displayed average city section household incomes, differences between average income, and association area for each decennial census from 1980 to 2010 in Detroit and Troy. Commodified governance is distinct from previous

sociological theories of governance by providing theoretical clarification necessary to operationalize social dynamics known to be impactful but difficult to quantify. Next, I move to a discussion of theoretical implications of residential governance associations.

Theoretical Implications of Residential Governance Commodification

Residential commodified governance extends existing governance literature by identifying covert economic and political processes enabling shifts in governing capacity, and by reframing the governance narrative incorporating the ability to shape structure through agency and create distinct policy priorities. Lefebvre (1991) applied political economy to urban development, particularly the economic and political factors involved in real estate development. He contended that real estate development was a product of capitalism, as real estate can be purchased by investors, developed into a product, sold for profit, and profits can be reinvested. Lefebvre extended political economy by acknowledging social dynamics of the built environment. Utilizing a commodified governance perspective extends Lefebvre's work by identifying the economic and political factors involved in real estate development as governance commodification. Where governing capacity over the built environment is a product of capitalism that can be purchased by public-private partners, developed into an HOA, sold to private citizens who are responsible for maintaining the public-private partnership, and profits can be reinvested. Profits and reinvestments are not limited to traditional monetary and market forms. Municipality profits are in the form of "double taxation" as HOA residents pay association fees as well as property taxes identical to non-HOA residents, but HOAs provide and maintain services and facilities traditionally provided by local governments (McKenzie 2005).

Homeowner profits are in the form of equity or increased assessed values of homes located in HOA communities compared to homes without an HOA (Meltzer and Cheung 2014). Reinvestment varies widely but has included additional services and amenities for community members and HOA residents, as excess tax revenue can be used to create parks, playgrounds, community pools, and/or provide additional funding to local schools (McCabe 2011). Commodity governance perspective provides an additional vantage point from which to observe the built environment's social dynamics, specifically social dynamics of inequality in the built environment.

Lefebvre insisted that real estate development produced spaces for social organization that are experienced during social interactions. If spaces are experienced during social interaction then spaces can be designed to provide and/or maintain specific experiences. In this sense, spaces produced by urban development can influence behaviors; thus spaces can be designed to suit specific social organizations (Gottdiener and Hutchison 2011). Commodity governance further explains how the built environment can be designed and maintained to promote specific experiences and remains unchallenged by those without access. Governance is commodified through the use and reproduction of PPPs, and occurs in spaces where the public-private distinction is blurred, and access is limited. Actors who create governing capacity from PPPs have the ability to shape different spaces from similar places. PPPs can share similarities but the governing capacity created can differ. For example, a downtown development authority can partner with a commercial developer on two different apartment building structures. The developer can create similar apartments in each building but charge different rents and offer different amenities in each building. The buildings would likely provide different experiences despite being similar places. Both buildings may have previously been apartments, but under

new ownership may have been remodeled to attract new residents, and rents may have changed causing some residents to leave. In this sense, the spaces have been designed to suit specific social organizations, but relied on the developer's ability to commodify governance.

Lefebvre posits the role of government in space as a social control agent. I assert that as governance is commodified spaces have elected to impose social controls beyond those established by government signifying a transition has occurred. Fraser et. al (2015) discuss the transformation as a "quiet revolution," where non-state entities have become increasingly important in shaping citizenship. In spaces where governance has been commodified entities with governing capacity become primary social control agents and government becomes a secondary social control agent. For example, CID and/or HOA communities can impose restrictions, monitor adherence, and deliver citations; but if residents refuse to comply local government can uphold CID and/or HOA decisions through the court system (McCabe 2011).

A fundamentally different approach is that of Bourdieu (1984), which focuses on an individual's ability to shape structure through agency. Bourdieu (1984) introduces the terms *habitus*, an individual's understanding (perception) of their position within the social structure, and *doxa*, an individual's actual (real) position within the social structure. According to Bourdieu when an individual's habitus and doxa are closely aligned their understanding of the social structure and positionality allows them to alter their position to some degree. To Bourdieu individual or group behaviors can explain the social structure of society. In this sense power is relative and actors can utilize positionality to define social structure.

An individual's ability to understand their position within the social structure would undoubtedly help an individual commodify governance. In fact, such knowledge would be imperative for an individual to successfully develop a public-private partnership with the goal of

creating and/or controlling governing capacity. However, individuals must occupy a social position where forming a public-private partnership would be accessible. In order to commodify governance individuals need to understand their position within social structure, and must occupy a position with access to governance. Utilizing Bourdieu's perspective on positionality helps to clarify how governance and subsequently governance commodification is an elite project. Elites are better able to understand the power of their social position and create advantages.

Bourdieu's notion of the field, vertically and horizontally aligned spaces where individuals and social positions are located and interact, informs individuals about cultural, economic, and social capital valued by society and its various associations with different fields and social positions. The field is where individuals demonstrate their positionality and gain distinction. Distinction is a symbolic process of establishing one's self as elite by exhibiting knowledge and taste for material or symbolic products culturally recognized through association with specific social positions. Fields have organizing principles that determine how they are experienced, where distinction provides and superior experience for those with the capacity to distinguish between the quality of material and symbolic goods.

Governance commodification takes into account Bourdieu's explanation of individuals shaping structure through agency and the social system of fields where social structures are shaped. Individuals must understand their social position relevant to the larger social structure and identify how to create socially stratified distinction. However Bourdieu does not address how manipulating social structures and one's position could alter the relationship between the individual and the state. The ability to commodify governance and create socially stratified distinction means that individuals experience citizenship differently, and differentiation is

structured by individuals with access to governing capacity. This next subsection describes how governance commodification changes the relationship between individuals and the state.

Local Governance and the Individual's Relationship with the State

How has the emergence of local governance entities affected the relationship between individuals and the state? Legally, private property ownership secures state support for owners who exercise their rights to exclude others from their property and assume exclusive benefits from the use of their property (Cashin 2001). In contrast, citizens are obliged to sacrifice individual self-interest for community interest that is protected by sovereign government (Cashin 2001). HOA governance blurs such distinction, in one sense individuals have communal obligations to their HOA community through bylaws and covenants, but in another sense HOA's represent the collective interest of private property owners despite affects to the larger community. Individuals who move into HOA governed communities are legally bound to HOA bylaws and covenants. To a degree, individuals become citizens of their HOA community, and develop private property owner relations with the state. In a practical sense HOA communities can privatize unequal benefits and risks through the legally ambiguous but protected commodity governance market.

Neoliberal governance created spaces to avoid social justice and reframed global conceptions of democracy and freedom as market functions. A host of scholars insist the neoliberal regime has contributed to rising global inequality and polarization (Nederveen Pieterse 2002, 2010; Stiglitz 2003; Harvey 2005; Sassen 2007). Neoliberal capitalist strategies of privatization, through public-private partnerships, normalize systems of public risks for

private gains (Harvey 2010; Kantor 2010; McLeod 2011). Harvey (2010) notes that traditionally neoliberal governance required legitimation through balancing coercion and consent of citizens. He now acknowledges an emergence of governance whose leaders are no longer concerned with gaining legitimacy. This leadership is present in Detroit's economic recovery, with local venture capitalists becoming blight task force leaders and major commercial property owners in Detroit thanks to "skyscraper sales" from the land bank and development authority (Detroit Blight Removal Task Force Plan 2014; Foroohar 2014; Muller 2014). Scholarship has recognized inequality in urban redevelopment and critiqued gentrification's ability to cleanse urban environments of poverty and crime (McLeod 2011; Harvey 2012), yet those displaced lack a voice or resources for recourse.

Governance literature has focused on power shared between government and individuals (see Stoker 1998), but they may be exaggerating the symbiotic relationship between actors by over rationalizing responsible efficiency and assuming actors act ethically (Lemke 2007). Markets normalized public-private partnerships, as elite expertise was needed to advise governments (Harvey 2005). Necessary shared governing capacity or neoliberal governance, legitimized the necessity for public-private partnerships by coercing the consent of the governed (Stiglitz 2003; Harvey 2005). Neoliberal governance hinders democracy and forces a choice between individualistic interest and collective good (Harvey 2005). Scholars of neoliberalism contend that legitimacy is required to sustain the governance system (Stiglitz 2003; Harvey 2005). Recently, scholars have recognized increased governing capacity among actors outside of government and decreasing legitimacy surrounding their involvement (Mah-Hui 2008; Harvey 2010; Kantor 2010; McLeod 2010; Fraser et. al. 2015). Governance systems no longer constrained by legitimacy suggests implications for social justice and a point of transition. The

ability to commodify governance enables institutional inequality through preferential policy-making and must be recognized, and addressed as an area of opportunity for policy makers.

Policy Implications of Residential Governance Commodification

Governance grants public decision-making power to private actors who may be biased toward self-interest (Stiglitz 2003; Harvey 2005; McMichael 2012), and greater attention should focus on how private actors are selected to govern and how their policies affect the public good. Governance commodification begins to explain this relationship in terms that can be operationalized and evaluated, but policy-makers must address issues of accountability and safeguards. Recognizing governance as a commodity also recognizes the altered relationship between citizens and the state, and a new need for political protection for individuals who lack access and/or have become further removed from political participation. Commodity governance is the notion that governance has exchange value and therefore resulting policies will best serve elite citizens who have the greatest access to participate.

Residential governance associations demonstrate how preferential policy can result in privatized benefits. Residential governance associations alone are not an issue, but their ability to create exclusive benefits and provide traditionally public services creates hierarchical classes of citizenship that excludes those at the bottom. Simply, residential governance associations are an additional level of governance created to provide exclusive benefits and subsequently create class differences between those with associations and those without. Additionally HOAs territorialize space through private roads and gate-access communities (MacLeod 2011; Fraser et al. 2015). Communities where HOAs become embedded in development practices, such as

Troy, Michigan where services and amenities are abundant and schools are nationally ranked, skews social perception of public goods and services, municipal financial health, and collective association contributions.

The first major policy implication is to identify municipal financial reliance on governance associations, and establish safeguards to prevent association governance failure. HOAs absorb costs of utility connection and maintenance, streets, sidewalks, and lighting typically paid and maintained by local municipalities allowing tax dollars to be spent elsewhere (MacLeod 2011; McCabe 2011). Identifying financial contributions of governance associations would determine the extent municipalities rely financially on governance associations. Determining financial reliance on governance associations would help municipalities define development thresholds spatially to maximize financial gains and minimize potential risks. Pinpointing the degree to which municipalities rely on governance associations would quantify the role of associations in structuring communities.

The second major policy implication of this research is acknowledging that some residents to not have access or resources to HOA membership. Developing an association funding program, similar to block grant funds, to charter associations in at-risk or low-income neighborhoods would provide needs based access and resources. These programs should also train and educate residents about forming sustainable associations that can provide needed services beyond a government sponsored training period. As this research demonstrates associations tend to cluster together and have a greater affect on area income where associations cluster more than average. Based on these findings an association funding program should target multiple areas within a community to maximize program impact and encourage nearby areas to charter associations. Governance commodification is not limited to residential governance

associations, and safeguards are need to protect citizens from governance failure at many levels.

MacLeod (2011) summarized transitions in urban politics and highlights concern for a post-political post-democratic city in which governance enables the public-private relationship to become primarily private raising concern for the public good among private interests. Concern for the public good is especially relevant today as private governance increasingly serves to govern public spaces and goods. Public spaces and goods such as streets, sidewalks, and utility servicing can be governed by elected local governments and/or unelected actors such as HOAs, emergency financial mangers, and/or private sub-contractors (MacLeod 2011; Fraser et. al. 2015). This concern is centered on Stoker's (1998) assertion that governance can fail with limited accountability. Several examples of governance failure experienced in Michigan have made national headlines, from Detroit's bankruptcy (Stiglitz 2013) to the Flint water crisis (Morris 2016), where consequences of governance failure are absorbed publicly.

Public policy officials need to recognize the damaging consequences of governance failure amid little accountability and develop safeguards to limit public consequences from privatized decision-making. As this dissertation highlights that Detroit's bankruptcy may have resulted from years of decline and many failed public-private partnerships, but the consequences are/were absorbed by impoverished residents who remained in Detroit's blighted neighborhoods (Okrent 2009; Detroit Blight Removal Task Force Plan 2014). Meanwhile Detroit suburbs, such as Troy, Michigan, improved Detroit's voluntary neighborhood association model by implementing residential development policies relying on involuntary HOAs to cut municipal costs and maintenance and informally segregate (Sugrue 2014). HOAs may offer some protection for upper and middle class residents seeking high quality public services and amenities, but offer little to no protection from larger scale governance failures like those that

caused the water crisis in Flint, Michigan.

This final policy implication is not limited to residential governance associations and proposes the need to establish structured channels for citizens to participate in governance. Requiring that information be provided to citizens would increase accountability. First, proper databases should be established and maintained to allow citizens to identify local, state, regional, and national governance organizations. Second, contact information and current policy programs should be accessible in a comprehensive database with identifiers. Such a database would allow citizens to identify organizations and/or policies that may affect them, and participate in the governance process. Data accessibility created issues for collection and verification and required a lengthy data collection process, which has notably limited research on HOAs (McCabe 2011) and neighborhood associations (Sugrue 2014). Next I move to a discussion of research limitations. This next subsection connects residential governance to research and discusses difficulties for researching governance commodification and this dissertation's strategy to operationalize commodity governance, and goals for future research.

Limitations and Future Research Goals

This dissertation is limited by data used for analysis, the informal nature of neighborhood associations, and limited records on formal governance associations. The first limitation comes from the availability of income data. Income data available for each census year from 1980-2010 was not adjusted for inflation. Income data used is nominal, or unadjusted for inflation. Since income is not adjusted for inflation income values are not directly comparable across census years. This dissertation does not compare income values across census years, but

compares locations where the high and low incomes values are located, and compares how explanatory variables effect income within a census year which is unaffected by inflation. Inflation changes income values not the distance between the highest and lowest values for a given year. Comparing where the highest and lowest income values are located by city section and across census years is not affected by inflation, as the highest and lowest observations would remain the highest and/or lowest observation regardless of inflation.

A second limitation was encountered when collecting data about HOAs and neighborhood associations. Despite being involuntary membership associations, HOAs are not required by law to register with the state Licensing and Regulatory Affairs (LARA) office; however many HOAs apply for tax-exempt status which requires state registration. After identifying subdivision names most HOAs can be found easily using the individual search process detailed in chapter four. Neighborhood associations are primarily informal voluntary organizations with no legal standing to enforce rules and/or regulations or to ensure that organization rules are consistent with fair housing and discrimination laws. Informal associations were not required by law to register with the state and were likely underrepresented. Larger neighborhood associations, whose structure resembled HOAs, were more likely to register and obtain tax-exempt status. Smaller associations that do not collect membership dues have little to no incentive to register with the state and were more likely omitted. Data underrepresenting neighborhood associations is problematic, but no formal database exists to verify or further identify neighborhood associations. Additionally, neighborhood associations affects were identified despite limited data, it is reasonable to believe that having a more complete accounting of neighborhood associations would only strengthen these results.

Lastly, research is limited by the availability of records on formal governance associations. There is no formal database for information on governance associations and no legal requirements for states to collect or publicly share information on governance associations. Limited availability and accessibility of governance association data increases risks for underrepresenting governance associations. Despite risks of underrepresenting governance associations, significant findings were established and it is very likely that these results would only be strengthened with a more representative sample. This dissertation only includes governance association data from Detroit and Troy, Michigan and is not generalizable across the state or region. However, citywide data for neighborhood associations and HOAs in Detroit and Troy has never been collected and examined empirically. Governance association data for Detroit and Troy may not be representative of the state or region, but citywide data for Detroit and Troy is the largest and most complete public records collection available.

Research limitations often highlight areas of improvement and/or direct future research goals; this dissertation has helped create the following goals to improve this research. First, I would expand data collection to encompass the entire state of Michigan. This process would be time consuming, as described in chapter four, gathering association data requires a two-step process. The first-step is identifying and recording all residential subdivisions by square mile, and then using subdivision records data associations can be identified and recorded by square mile. Collecting statewide governance association data would allow this research to be replicated on a larger scale to identify regional trends associated with governance associations, household income, educational attainment, and race.

My last goal to improve this research is to extend governance inquiry into non-residential governance organizations such as downtown development authorities, business improvement

districts, land banks, etc. Similar to residential governance associations no database exists specifically for these organizations, but this endeavor would be much more challenging because unlike residential associations these governance organizations are not linked to real estate properties. These organizations have enormous influence in city design, development, redevelopment, and sociocultural change (MacLeod 2011), yet information about these organizations is limited. Governance organizations charged to shaping and/or reshaping public space through private investments and/or partnerships should be transparent as their influence can impact the public good. Ideally, I would examine relationships between residential and non-residential governance organizations demographically and spatially throughout the state of Michigan.

APPENDIX

APPENDIX: DESCRIPTIVE STATISTICS TABLES

Table 22: Descriptive Statistics by Decennial Census for Detroit

	1980		1990		2000		2010	
Variable Name	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Total Population	6950.98	4007.17	5938.15	3463.61	5495.13	3251.05	4123.07	2437.59
Income	14859.84	4861.32	20677.49	8448.14	29454.74	9785.24	29304.45	9168.19
Race Black	4383.99	4120.42	4493.74	3509.37	4481.18	3234.04	3409.14	2393.86
Race Other	177.16	308.44	160.31	326.95	340.32	600.34	276.18	530.52
Race White	2389.83	2411.11	1284.11	1566.67	673.63	945.41	437.75	724.79
No Grad	1808.39	1174.2	1338.38	851.03	989.36	635.72	622.06	424.01
HS Grad	1245.19	724.74	979.46	577.82	979.01	593.23	912.14	566.24
S College	565.87	390.1	878.07	587.18	932.3	627.63	832.3	556.62
College Degree	328.64	337.24	339.64	344.54	357.12	352.91	316.54	308.1
Subdivision Area	0.22	0.17	0.22	0.17	0.22	0.17	0.22	0.17
HOA Area	0.01	0.035	0.011	0.04	0.012	0.04	0.012	0.04
N Association	0.021	0.054	0.023	0.054	0.027	0.062	0.022	0.059
% Black	53.87	35.27	67.98	31.7	75.72	27.33	78.45	25.57
% Other	3.46	5.32	3.34	5.3	7.13	9.42	7.53	10.23
% White	42.67	33.45	28.76	29.01	17.14	19.95	14.02	16.79
% No Grad	45.1	13.3	37.98	12.19	30.98	12.27	23.74	10.56
% HS Grad	31.77	6.77	27.49	5.09	29.16	6.18	33.15	6.84
% Scollege	14.29	5.02	24.02	6.45	27.26	7.81	29.84	8
% College Degree	8.83	7.57	10.5	9.2	10.86	8.11	11.54	7.5
% HOA/SUB Area	4.69	16.05	5.16	16.22	5.43	16.28	5.42	16.28
% SUB Area	25.51	17.85	25.52	17.85	25.58	17.83	25.61	17.82
% Neighborhood Association	5.98	13.83	7.63	14.62	8.71	16	6.14	13.85

Table 23: Descriptive Statistics by Decennial Census for Troy								
	1980		1990		2000		2010	
Variable Name	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Total Population	2,387.78	1,307.06	2,504.87	1,061.48	2,714.49	1,012.48	2,699.30	998.984
Income	31,186	6,362.05	54,799.76	14,909.08	79,354.45	20,916.92	91,499.14	22,852.17
Race Black	18.7	14.56	29.423	17.6	52.936	24.62	105.42	71.68
Race Other	92.34	54.57	152.541	72.379	369.196	213.27	518.82	260.29
Race White	2,276.74	1,282.65	2,322.90	1,041.79	2,292.36	932.444	2,075.06	874.01
No Grad	226.56	191.52	185.429	162.23	139.31	111.14	100.738	96.453
HS Grad	470.55	323.93	368.024	266.81	338.178	209.628	311.133	192.821
S College	285.63	161.64	474.8	232.522	478.308	251	425.614	237.144
College Degree	460.85	277.2	637.582	332.06	899.342	372.166	1,028.99	419.063
Subdivision Area	0.408	0.237	0.464	0.262	0.5014	0.2784	0.511	0.283
HOA Area	0.162	0.205	0.231	0.238	0.276	0.254	0.291	0.259
% black	0.92	0.625	1.265	0.824	1.988	0.764	3.832	1.779
% other	4.191	1.784	6.374	2.951	13.716	5.946	19.568	7.626
% white	94.89	2.071	92.361	3.485	84.295	6.517	76.601	8.413
% no grad	15.611	8.523	11.194	7.463	7.843	5.573	5.505	4.982
% Hsgrad	32.083	6.126	21.646	6.753	18.174	6.15	16.877	6.281
% scollege	19.77	3.51	28.25	2.818	25.399	4.202	22.496	5.131
% coll degree	32.54	11.08	38.913	14.249	48.584	13.625	55.121	13.887
% HOA/Sub	29.6	32.9	39.442	34.354	43.529	33.253	45.91	33.7
% Sub Area	39.554	22.724	45.048	25.194	48.585	26.683	49.47	27.126

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