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Walkable and resurgent for whom? The uneven geographies of walkability in Buffalo, NY

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A B S T R A C T

Planners and policymakers are increasingly calling for investment into walkable neighborhoods as a means for creating new social, economic, and cultural value in cities. Such calls are often for the kind of high density, mixed-use urbanism that existed prior to the automobile era. Notably, many older industrial cities once exhibited this style of urbanism, and were characterized as "walking cities". More recently, these cities have battled persistent population loss, economic contraction, physical deterioration, and auto-oriented development. As such, their landscapes of walkability may now be fractured or uneven. Moreover, redevelopment efforts that champion "walkability" in such places are regularly targeted toward stable and gentrifying neighborhoods, rather than more distressed areas where resident mobility is comparatively limited. This paper engages with these and related themes for Buffalo, NY—a classic American "shrinking city"—to understand if/how walkability varies for different socioeconomic and demographic groups. We use WalkScore® data measured at the census block group-level to study the geographies of walkability relative to selected socioeconomic attributes. We find that walkable block groups are highly clustered in certain parts of the city, that housing values in walkable areas are increasing, and that individuals in poverty and members of certain minority groups live in block groups with disproportionately low WalkScore®. Crucially, the city features several clusters of limited mobility wherein walkability is poor and residents have insufficient access to automobiles. These results suggest that social justice must be a prominent element in urban redevelopment strategies that call for investments into "walkability".

1. Introduction

Living in a neighborhood where it is safe and easy to walk to essential retail, institutional, and recreational opportunities is associated with various health (e.g., Wang, Wen, & Xu, 2013), social (e.g., Leyden, 2003; Talen & Koschinsky, 2014), environmental (e.g., Bechle, Millet, & Marshall, 2011), and economic (e.g, Leinberger & Alfonzo, 2012) benefits for individuals compared to life in an automobile-dependent community. So-called "walkable" neighborhoods are therefore thought to be more equitable, sustainable, and economically generative living spaces relative to the disconnected, automobile-dependent land use patterns found in a typical suburban development (Speck, 2012). However, recent research (Riggs, 2014; Tighe & Ganning, 2016) and media coverage (DiNatale, 2014) suggests that, due to rising demand for homes in walkable neighborhoods, and the attendant escalation of housing costs in such locations (Pivo & Fisher, 2011), the geographies of walkability within a given city are likely to be highly uneven. Perhaps more problematically, though, is that patterns of public and private investment into designing or enhancing walkability tend to reinforce these fragmented landscapes. Indeed, planning and decision-making in the name of "walkability" has been said to "invisibilize" underrepresented peoples and locations, as investments flow into those intra-city spaces that are already thriving, stable, or "gentrifying", rather than more distressed areas where resident mobility is comparatively limited (e.g., Zavestoski & Agyeman, 2015).

In light of such observations, there is an urgent need to further explore geographic patterns of urban walkability, and to uncover the spatial relationships that might exist between walkability and local housing, socioeconomic, and demographic characteristics within cities (e.g., Quastel, Moos, & Lynch, 2012). More precisely, given the prominent place of walkability on contemporary urban planning and policy agendas (e.g., Aguilar, 2016; Formby, 2016), it is critical for planning practitioners and applied researchers to begin to focus as much (or more) on "the social" as on "the physical" (i.e., layout and design) dimensions of urban walkability (Quastel et al., 2012).

The current paper contributes to this stream of research by adopting the lens of an American postindustrial, "shrinking" city. Shrinking cities in the U.S. are those that have experienced prevalent, persistent, and

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severe population loss since at least the 1950s (Beauregard, 2003), due in part to suburbanization, southward and westward migration, and relocation of manufacturing operations to areas with lower production costs (e.g., Schilling & Mallach, 2012). Crucially, many of these places were largely built out prior to the advent of the automobile, and were thus originally thought of as "walking cities"—so named because at the time of development, they were compact in size and shape and lacked alternative modes of transportation (Kaplan, Wheeler, & Holloway, 2004, p. 222). In other words, they exhibited the type of high-density, mixed-use urbanism so coveted by the preponderance of today's urban planners, designers, and policymakers (e.g., Weaver, Bagchi-Sen, Knight, & Frazier, 2016). Potentially more importantly, recent research suggests that patterns of walkability in shrinking cities might be more equitable than in growing cities (Bereitschaft, 2017), perhaps owing to lower cost housing. Along these lines, using the shrinking city of Buffalo, NY, USA as a case study—in part because of the city's increasingly celebrated "resurgence" and prevalence of walkable neighborhoods, as claimed in some corners of the news media (e.g., DiNatale, 2014)—we seek to answer the following questions:

1. What is the current geographic distribution of walkability in the former "walking city" of Buffalo, NY?
2. Do socioeconomic and demographic composition differ in areas with different levels of walkability in Buffalo? And,
3. Does Buffalo contain any spaces in which resident mobility is severely constrained by a combination of low walkability and low access to automobiles? (The existence of such spaces would not only be an artifact of uneven geographies of walkability; but should also be flagged as a pressing concern and have immediate relevance for local planners and policymakers.)

To answer these questions, we rely on WalkScore® (http://walkscore.com) and U.S. Census socioeconomic and demographic data measured at the census block group-level in Buffalo, NY. While it is helpful to note up front that WalkScore® measures walkable *access* to daily amenities (Gilderbloom, Riggs, & Meares, 2015, p. 13), and not the more holistic concept of *walkability per se*, ample research has "validate[d] [WalkScore®] as an appropriate proxy for walkability and the propensity for walking behavior" (Gilderbloom et al., 2015, p. 14; also see; Carr, Dunsiger, & Marcus, 2011; Duncan et al., 2012, 2013; Leinberger & Alfonzo, 2012). With that being said, we find that (1) walkable block groups are highly clustered in stable and gentrifying parts of Buffalo, (2) housing values in walkable areas are increasing, and (3) Black residents and unemployed residents are most likely to live in block groups with disproportionately low WalkScores®. Additionally, Buffalo features several clusters of isolation wherein walkability is poor and residents have insufficient access to automobiles. These results demand that considerations of social justice play more prominent roles in urban redevelopment strategies and policies that are aimed at creating walkable neighborhoods.

2. Research context: benefits of walkable neighborhoods

Neighborhood walkability is associated with numerous positive human health, environmental, and economic outcomes. For instance, urban environments with walkable access to potential destinations, mixed land use, high population density, and built environment features that promote walking behavior, such as the presence of sidewalks and street connectivity, have been linked to increased physical activity by walking, which is associated with improved health outcomes including reduced obesity rates (Frank, Andresen, & Schmid, 2004; Saelens & Handy, 2008; Wang et al., 2013). With growing levels of social inequality and increasing class and race-based health disparities in the U.S., addressing transportation equity across racial and income groups by expanding access to walkable neighborhoods offers an opportunity to improve individual health outcomes for low-income and minority residents (Sallis, Frank, Saelens, & Kraft, 2004).

American consumers commit on average 17% of their annual budgets to transportation (U.S. Bureau of Labor Statistics, 2017), intimating that the individual-level economic benefits to living in a walkable neighborhood can be quite substantial (Center for Neighborhood Technology, n.d.). Shifting consumer expenditures away from automobile-related transportation costs has also been linked to increases in neighborhood-level economic benefits (Litman, 2017). The upshot is that spaces characterized by walkable access to jobs, food, services, and other household necessities, and to public transportation that facilitates access goods and services which may not be located within walking distance, can provide numerous benefits to residents and their local economies. Neighborhoods that provide these location advantages are said to be location-efficient (Koschinsky & Talen, 2016), which is especially important for low-income households because they are less likely to own a private vehicle and more likely to rely heavily on public transportation (Hess, 2005; Pollack, Bluestone, & Billingham, 2010).

The manifold benefits associated with walkability are further implicated by housing market activity, where rising demand for walkable, mixed-use neighborhoods gets capitalized into residential home prices. For instance, a recent study on resident groups' neighborhood preferences found that householders strongly prefer neighborhoods everyday necessities are located within walking distance from their homes (Brookfield, 2016). Other research supports this notion more directly, by documenting that residents tend to pay more for homes in neighborhoods possessing characteristics associated with increased walkability, connected street networks, smaller blocks, mixed land uses, and proximity to light rail (Matthews & Turnbull, 2007; Song & Knaap, 2003). Studies that employ WalkScore® as a proxy for walkability have found that walkability has a positive association with housing values, and negative links to crime and foreclosure rates (Gilderbloom et al., 2015). Further, increases in walkability have been linked to increases in office, retail, and apartment property values (Pivo & Fisher, 2011). These walkability premiums in real property transactions are most evident in urban neighborhoods that are already walkable (Li et al., 2015; Song & Knaap, 2003).

Given the documented benefits of living in walkable neighborhoods, as well as evidence for rising housing costs and demand for walkable neighborhoods, researchers have begun to evaluate whether some segments of the population enjoy unequal access to walkable neighborhoods. An investigation into the spatial relationships between socioeconomic and demographic characteristics and WalkScore® in Boston found no statistically significant association between neighborhood socioeconomic and demographic characteristics and access to walkable amenities (Duncan et al., 2012). Another study focusing on the inclusiveness of walkable neighborhoods in San Francisco found that neighborhoods with a higher concentration of black residents tend to be less walkable (Riggs, 2014). This study suggests that high housing prices in walkable neighborhoods may force minorities to move to inaccessible areas outside of the urban core, and that cost may be a barrier to moving out of isolated neighborhoods that suffer from a lack of investment in the built environment. Bereitschaft (2017) mapped walkability alongside indicators of social vulnerability for three U.S. cities with distinct physical and socioeconomic environments: Charlotte, NC; Pittsburgh, PA; and Portland, OR. While the spatial patterns of walkability and social vulnerability varied widely across the cities, Pittsburgh, a Rust Belt city that exhibits many of the same socioeconomic trends as Buffalo, exhibited the greatest *equity* in terms of access to walkable environments (Bereitschaft, 2017). With respect to Bereitschaft's (2017) study in particular, then, there may be reason to believe that walkability is more equitably distributed in the U.S. in shrinking (Pittsburgh) relative to growing (Charlotte) cities. Accordingly, this article aims to study patterns of walkability in the shrinking city of Buffalo, NY, and to look for associations between those patterns and patterns of selected socioeconomic and demographic variables.