Race, music, and technological change: The shifting music retail landscape of Milwaukee county, 1970–2010

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A R T I C L E I N F O	A B S T R A C T
	Urban scholars have consistently demonstrated how cultural consumption and production have long shaped (and have been shaped by) the cityscape. However, less is known about the impacts of digitization and residential segregation on the distribution of cultural spaces over time. Because of this, scholars lack a testable theory of the spatio-cultural impact of digitization. To address this, I examine the distribution of music retailers, one of the first cultural sectors to be threatened by digitization. I ask: what changes in the failure, founding, and persistence of record stores coincide with larger changes in demographics and music formats? The findings suggest that the distribution of cultural spaces of consumption has indeed been shaped by digitization, but through the mechanism of increasing risks associated with opening new stores. But previous technological changes in concert with racial segregation also led to the loss of these cultural spaces in predominantly Black neighborhoods as well.

1. Introduction

Urban scholars have consistently demonstrated how cultural consumption (Zukin, 2009) and production (Scott, 1999) have long shaped (and have been shaped by) the cityscape (Craig, 2013). Creative and cultural industries scholars have similarly noted how the deindustrialized city has emerged as a site where new forms of production and consumption are intertwined (Lloyd, 2010; Pratt, 2008). However, less is known about how spaces of cultural distribution and exchange continue to be shaped by digitization. Because of this, scholars lack a theory of the spatio-cultural impact of digitization. If cities remain an important site for the consumption, production, and distribution of culture, then understanding how this landscape has changed over time is key. Music was one of the first areas of culture to be reshaped by digitization. Industry groups and some academics argue that revenues nose-dived because of consumer behaviors like filesharing (Liebowitz, 2017; RIAA 2021). Still others argue that the digitization of music has been far less destructive to the power structure of the recording industry than some might have claimed (Arditi, 2021; Oberholzer-Gee & Strumpf, 2016; Rogers, 2013). Yet, the spatial ramifications of this digital change remain understudied and undertheorized. In this article, I use the changing distribution of music retailers in the city over time as a strategy to address this.

Many urban landscapes are characterized by economic, social, and cultural inequalities (ex. class, religious sect, nativity). In the case of the US, race is often the most salient line of division as many cities remain persistently segregated over time (Logan & Stults, 2011; Massey & Denton, 1993). How racial segregation shapes the distribution of vital resources like grocery stores and access to medical care is well-researched (Kwate et al., 2012; Thompson & Porter, 2015). Yet, access to musical culture and exchange, which for at least a half of a century was the domain of music retailers, remains underexplored. As such, the ties between technological change, race, and music also remain undertheorized. In this article I aim to advance the development of theory, asking first: how has digitization shaped the distribution of music retailers in the urban landscape? And then following up on that question, I ask: what is the role of racial segregation in these changes?

Music consumption has dramatically changed over the past half century, shifting from vinyl to subscription-based streaming services. Between these points was a period of unprecedented growth and dramatic decline, as the compact disc met with peer-to-peer filesharing (RIAA, 2021). This decline lasted until 2016 when modest growth in revenues, driven by online sales and subscription services, signaled a reversal of this trend. But 1999–2001 was a pivotal moment when the industry, based on a per-unit pricing model (Leyshon et al., 2005) abruptly lost the ability to generate artificial scarcity (Hesmondhalgh, 2013) in recorded music. Because cultural objects like music recordings are durable (meaning they theoretically do not diminish with each listen) and inexpensive to reproduce, the recording industry has traditionally relied on restricting access to generate value, artificially

creating scarcity that would not exist otherwise. The emergence of file-sharing meant that suddenly music was available everywhere, and the industry struggled to find a new model within these changing circumstances (Arditi, 2019; Leyshon et al., 2005). Consumers no longer had to travel to neighborhood shops or the mall to obtain recorded music.

To investigate these topics, I analyze the location of music retailers over the course of four decades, spanning from 1970 to 2010 in the Milwaukee metropolitan area. First, I look at year-by-year change of record stores in the study area. Then from this point, I further examine changes from the previous year, looking at how many stores have survived (persistent), how many have closed (failure) and how many have recently opened (founding). I combine this location data with longitudinal neighborhood data, to examine change over time and space as it relates to local racial composition.

Taken together, the findings suggest that digitization did alter the number and placement of music retailers. But it did not do so by shuttering stores; it curtailed new store openings. When looking at the racial composition of neighborhoods, patterns further suggest that the connection between majority Black neighborhoods and music retail has vanished over time. Accounts of music industry change and agglomeration have missed this point. Based on these findings, I argue that changes in music technology have altered the cultural landscape of cities, but through the mechanism of increasing risks to new ventures, not through increased failures.

2. Literature review

2.1. Music and the city

Urban scholars have established the role of space in music production and consumption processes (Cohen, 2015; Craig, 2013; Krims, 2007; Lashua et al., 2019; Prior, 2014; Scott, 1999; Virani, 2016). Work on the clustering of music production shows how over time, some US musicians have shifted away from cities with particular scenes (like New Orleans or Detroit) and towards regional cities like Los Angeles and New York (Florida et al., 2010), while earlier work by Scott (1999) demonstrates how labels cluster not only within those same cities, but also within just a few neighborhoods in those cities. On the other hand, scholars of digitization note how the production and consumption of popular music is decreasingly place-bound than in the recent past (Arditi, 2019; Hracs, 2012; Watson & Beaverstock, 2016). Craig (2013) argues that the consumption of recorded culture has become decreasingly tied to urban spaces. Studying the live music sectors of Nashville and Pittsburgh, the findings of Johansson et al. (2016) suggest that digitization has reshaped the distribution of music venues and clusters. Explanations of how recorded music consumption has changed over time in the city remain largely speculative though.

2.2. Music and digitization

While the downturn in music industry revenues is well documented, and major labels have placed the blame for this on peer-to-peer (P2P) platforms, Leyshon (et al., 2005) argue that the music industry has been narrowly escaping collapse at least since the 1980s. The adoption of the CD format led to years of industry growth. When P2P technology like Napster arrived, consumers were thinking about music differently than they had a generation before; no longer was music a cultural product central to teenage consumption, it had become an accessory to other cultural forms. Liebowitz (2017) argues that the dramatic decrease in music industry revenues following 1999 is primarily caused by the adoption of the MP3 format, and associated peer-to-peer filesharing platforms (Napster, KaZaA, etc.). Oberholzer-Gee and Strumpf (2016) dispute this, arguing that while file-sharing is likely driving down revenues, the increased consumption of other forms of electronic media (films and video games) is more influential. Arditi (2014) argues that

over the past 60 years, when a new format has come onto the market, labels could count on consumers to purchase new copies of albums they already owned (residual album sales). This was the case as consumers switched from vinyl/cassette to CD, but not from CD to MP3 (Arditi, 2014). Early on in this transition, powerful groups from within the recording industry argued that consumer practices like filesharing and piracy were negatively impacting the ability of musicians to earn a living (echoing earlier sentiments about home taping). According to Rogers (2013), these groups used a "doom and gloom" narrative to try and shape consumer behavior, while the recording industry adapted to technological change as it always has. Arditi (2021) goes a step further, suggesting that not only is the recording industry alive and well, but that also streaming and subscription services extract greater revenues than under the old analogue system of distribution. Arditi (2016); see also Arditi, 2021) further argues that as the industry finally started to catch up to P2P filesharing in the form of online music stores, this led to the failure of their brick-and-mortar counterparts. Yet patterns of store failure and persistence are rarely directly studied.

2.3. Racialized landscapes and retail

Scholars of retail and racial segregation suggest how the distribution of stores might differ along racial lines. The retail mix of predominantly Black areas of the city have become increasingly homogeneous (Kwate & Loh, 2016), as these parts of the city have undergone "retail desertification" (Charron-Chénier et al., 2016, p. 213). This homogeneity in retail is in part driven by national chains avoiding minority areas of the city by (Kwate, 2015; Thompson & Porter, 2015). Using GIS mapping and statistical regression modeling, Kwate (et al., 2012) analyze distances to retail locations and local demographics. The findings show that Black neighborhoods are further away from many important retail types, while being closer to many fast-food types, even when controlling for consumer demand. These findings suggest that retailers have long avoided Black neighborhoods even when there is consumer demand for their products, resulting in what the authors call retail redlining. While most innovations in popular music in the 20th century (jazz, blues, rock and roll, hip hop, r&b to name only a few) originate in Black communities in the US, very little is known about music retail in predominantly Black neighborhoods, or how it has changed over time.

2.4. Record stores

While research on the consumption of physical formats in the wake of widespread digitization is growing (Arditi, 2019; Bartmanski & Woodward, 2015; Hracs et al., 2016) record stores remain understudied with just a few exceptions. Studies of contemporary record stores show that these places provide consumers an arena for interacting with materials that have taken on new meanings with the advent of digitization (Bartmanski & Woodward, 2015). Successful record store owners today are focusing on creating a space where music consumption is an experience in and of itself (Hendricks, 2016; Hracs & Jansson, 2017; Sonnichsen, 2016).

Staff use online platforms to promote the store and sell product to a global market, which challenges notions about the opposition between online and brick-and-mortar retail (Hracs & Jansson, 2017). These physical spaces, promoted through digital means, can sometimes even be the focal point of tourists looking to reaffirm their emotional connection to musical subcultures (Sonnichsen, 2017). These analyses clearly demonstrate that the record store of today is a place where consumers experience an emotional connection to the music they love in a world where physical formats are technologically obsolete.

Looking more closely at historical change, Davis (2011) provides an examination of stores in North Carolina from 1960 to 1990 and argues that "… the 1980s may well have marked the twilight years of the golden age of African American-owned record stores" (p. 83). Davis (2011) argues that Black-owned record stores in the 1970s were

particularly important institutions for community identity and gathering. In the 1980s though, these retailers were beset with several challenges. Compared to White owners, Black record store owners had a more difficult time securing product from vendors, and their access to credit was lower. This meant that Black owners had to pay for stock out-of-pocket, a risky proposition for any business owner. Along with these challenges, during the 1980s major chains began to stock Black music forms they had previously avoided.

While home taping posed a significant threat to Black-owned record stores, according to Davis (2011), the music industry's strategy of transitioning away from tapes and records to compact discs was particularly difficult for smaller enterprises. Plasketes (1992) notes how during this period, record companies made it more difficult to carry anything but compact discs by increasing the costs of returning unsold stock. Goss (2010) interviews record store owners that weathered this transition period, and states that during this time "… when the CD format replace vinyl, profit margins shrank" (p. 220) for record stores, largely due to the smaller margins associated with CD sales compared to vinyl. This period was particularly challenging for independent stores that lacked the buying power of larger chains. While the topic of digitization has become an area of interest for scholars in a wide range of fields, few have systematically studied its influence on the cultural landscape of cities.

2.5. Study area: Milwaukee, Wisconsin

The study area for this research is the US city of Milwaukee, Wisconsin. With a population of 577,222 (U.S. Bureau of the Census, 2020), Milwaukee is the largest in the state. The city is roughly 130 km (80mi) north of Chicago and part of the larger Upper Midwestern region of the US. It's historical development, decline, and renewal follows a trajectory not unlike many of its post-industrial counterparts (Jackson, 1985; Jones, 2010). Located along the eastern shore of Lake Michigan, Milwaukee became an important regional hub for manufacturing as well as brewing in the late 1800s. Deindustrialization and suburbanization reshaped the city in the 1970s and throughout the 1980s, as the economic fortunes of the city declined, similar to other post-industrial cities in the West. Since the 1990s, renewal efforts have reinvented many former industrial sectors, but the city remains an uneven landscape.

Similar to large and mid-size cities in the region, Milwaukee has been consistently plagued by racial segregation. Recent Census figures show that Whites (36.1%), Blacks, (38.6%), and Hispanics (20.1%) make up the major racial-ethnic groups in the city today. White ethnic groups (Germans, Poles, Irish, and Italians (among others)) emigrated to the growing industrial city in the late 1800 and early 1900s. Black populations settled in the area as part of the Great Migration, but were met by the forces of residential redlining, restrictive covenants, discriminatory lending practices, and weak enforcement of fair housing laws (Boustan, 2012; Jones, 2010; Pattillo, 2013). Throughout the 20th century, these racist practices and associated institutions concentrated Black Americans into Milwaukee's Northwest side (Jones, 2010). As a result, Milwaukee is often near the top of lists ranking the most segregated cities in America (Logan & Stults, 2011; Massey & Denton, 1993; Wilkes & Iceland, 2004). Since the early 1990s the number of Hispanics settling in Milwaukee has grown, especially in the city's South side. But, similar to White-Black segregation, Milwaukee has some of the highest White-Hispanic segregation in the US as well (Levine, 2016). Today, most of Milwaukee's White, Black, and Hispanic populations live in distinct sectors of the city (see ESRI, 2023 for a visual representation of these neighborhoods).

3. Methods

3.1. Locations

The location data for this analysis comes from two main sources:

Milwaukee city directories and Milwaukee telephone directories. Milwaukee makes for a useful study area because of well-preserved directories in hardcopy housed at both the Milwaukee Public Library, and the University of Wisconsin-Milwaukee library. While at one time ubiquitous, telephone and city directories can be difficult to locate for many cities today. For the purposes of this analysis, I use the term "record store" generically, to refer to brick-and-mortar retailers of recorded music, regardless of the formats they may have carried. From these hardcopies, I digitized 2758 directory entries by hand under various headings which encompassed music retail.

Gaps became apparent when organizing stores by name, address, and then year. For example, one store had entries for each year between 1973 and 1987, except for 1985. In these cases, I assume that the store existed in the missing year(s). But when the gap in years exceeds five, I treat the two "spells" as separate stores (as if a store pulled out of a location and then returned) to be conservative. In cases where the number of missing years is four or less it seems more reasonable to assume that a store owner did not list a location than it does to assume that a location closed and then reopened a couple of years later.

For the most part, I assume that if a store is listed in a directory under the heading "record store", "record shop", "phonograph retail" (or some later variant), than it is a record store. But to be conservative, I cut entries that blatantly look to be for business other than brick-and-mortar retailers of physical music, including: data storage facilities, other music businesses (production, distribution, or management), private residences, karaoke or video stores, musical instrument and sheet music stores, or were strictly electronics stores (e.g. Radio Shack). Duplicate entries, unspecified or vague entries, and those outside of Milwaukee County were eliminated from this analysis. I geocoded addresses using US Census Geocoder software (U.S. Bureau of the Census, 2017), which uses street addresses to identify longitude and latitude values (x and y), as well as 11-digit 2010 census-tract identifiers. Most addresses had an exact or near exact match, but 143 entries (5.5%) were either tied with other addresses or could not be found by US Census software. For these entries, I used Google Maps to identify the longitude and latitude values, which can also be used by Census Geocoder Software to identify census tracts.

Following geocoding, I estimated store foundings, failures. Stores that underwent name changes, but kept the same address, I consider a single continuous store. Only 22 out of 434 stores underwent name changes during the study period and area. Stores that relocate more than a few blocks away I consider distinct locations for the purposes of this analysis. I label the first year a record store appears in the directories as its "founding". I code a failure for a year if a store does not appear in a subsequent directory and does not have a gap before appearing in a later directory (up to 4 years). I categorize the years between founding and failure, as "persistent" years. Directory data, while tedious and imperfect, is the best estimate of store lifecycles for the scale of this analysis (41 years at the county-level), short of studying each store in-depth which is beyond the scope of this research.

There are cases where one store shares an address with another (or many others), specifically those located within malls. In these cases, I treat stores that exist at the same address and at the same time as distinct entities when they are located in a known mall. When a store acquisition and rebranding is documented, as in the case of Camelot Music rebranded as F.Y.E. (TransWorld, 2017), I treat the location as a single entity with a name change. I estimate what year a store opens, closes, and the time in between, by sorting location entries by name, address and then year. This allows me to collapse directory entries into 434 unique locations over the study period in Milwaukee County.

3.2. Tract-level characteristics

The Longitudinal Tract Database (LTDB) (Logan et al., 2012), housed at Brown University, allows for comparisons between Census years, from 1970 to 2010 (the most recently available US Census data at time of

writing). This allows for an analysis to account for neighborhood changes over four decades, following decennial census year ('70, '80, '90, '00, '10). I use linear interpolation (Snedecor & Cochran, 1989) to estimate tract-level characteristics between each pair of census years. This allows for a year-by-year analysis of neighborhood change. Only one census tract had missing data for Milwaukee County; a tract near Lake Michigan with no inhabitants (tract 9800, a park), which is omitted from the following analysis. Percentages were estimated for Hispanic in 1970 using standard methods presented by Timberlake and Iceland (2007), (p. 363) because these are not available for that Census year.

3.3. Format revenue data

National-level music industry revenue data comes from the Recording Industry Association of America's U.S. Sales Database (RIAA, 2021) and covers the years 1973–2010 for this analysis. I use national data because county-level figures are not available. I have simplified the revenue data for these categories by combining data on "vinyl single" and "LP/EP" into "vinyl revenues" as well as for cassette (from "cassette single" and "cassettes"), compact disc (from "CD Single" and "CD"), and digital (from "downloaded singles", downloaded albums", "kiosk", "downloaded music videos", "ringtones", and "paid subscriptions").

4. Results

4.1. Founding, failure, and persistence in the landscape

Fig. 1 shows how store founding, failure, and persistence changed over time in Milwaukee County (1976–2010), alongside changes in music technology. The vertical bars represent peak revenues for specific formats (RIAA, 2021), along with the Napster Era (1999–2001) (Levine, 2011). The solid horizontal line represents the number of stores that have failed, while the dashed horizontal line represents the number of new stores founded that year. The solid line with dots represents the number of record stores that have persisted (or carried over) from the year previous. For the sake of clarity, I use 5-year rolling averages for each of these numbers (hence the starting point of 1975). In general,
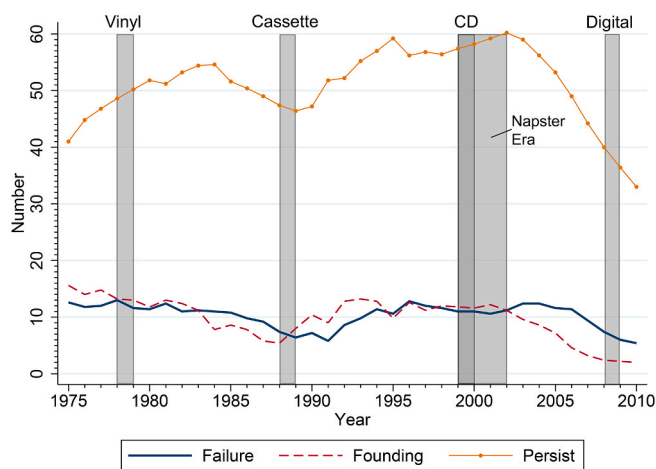
periods of growth can be seen following times where the dashed line (founding) is above the solid line (failure), and vice versa.

In Milwaukee County, between 1975 and 2010, periods of failure were typically followed by periods of growth in an alternating fashion. As formats changed, growth and loss largely kept pace with one another, resulting in a degree of overall stability in terms of the number of persistent record stores from one year to the next. But around 2001, during the Napster era, the number of foundings fell and never recovered, continuing this way for the next nine years. This had the effect of driving down total numbers over time, as the pattern of loss and renewal was sent off balance. These data suggest that file-sharing did not push stores to fail as much as it choked off new foundings. Failure was a regular feature of the record retail business and the cultural landscape. Commonly held perceptions that consumer behaviors like file-sharing killed off record stores are incorrect in this respect, because around 10 record stores closed every year in the study area and period. But the threat of this technological development did seem to increase the risks involved with opening new stores. As the record industry lost the ability to control artificial scarcity, new ventures dried up, changing the distribution of material musical culture in the landscape.

4.2. Race/ethnicity and music retail in the city

While Fig. 1 shows how digitization has shaped the landscape, in the case of Milwaukee County, this is a very unequal landscape, sharply divided along racial lines. Fig. 2 presents change over time in terms of the race/ethnic makeup of neighborhoods in Milwaukee County (1970–2010), and the yearly percent of record stores in these neighborhoods. For the sake of simplicity, racial composition here is a categorical variable (majority White, majority Black, majority minority, majority Hispanic, and integrated), based on Peterson and Krivo's (2010) definitions. Census tracts where 70% or more of the population is White I categorize as "majority White." Majority Black and majority Hispanic categories follow the same logic. Minority majority areas are those where Whites make up less than 30% of the population, and no one non-White group (Black, Hispanic, or Asian) makes up 70% on its own. Integrated census tracts are those remaining tracts where White and non-White populations are more nearly even. I have omitted plots for
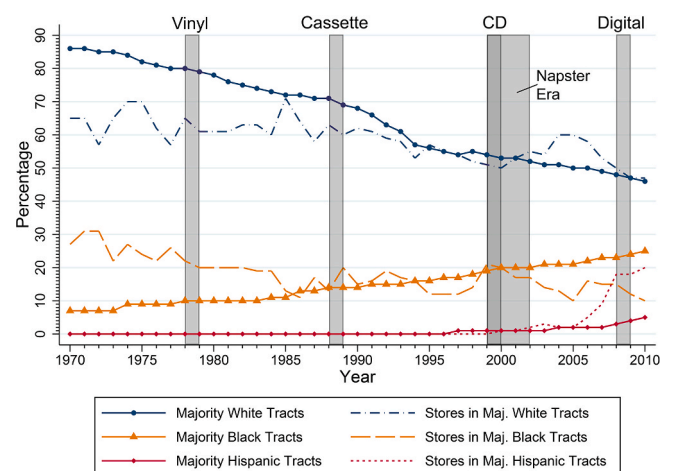

Fig. 1. Number of Founding, Failed, and Persistent Record Stores (5-year rolling average) in Milwaukee County, 1975–2010, with Peak Revenue Format Years.
Sources:
Census Tract data: Longitudinal Tract Database (LTDB)
Record store locations: Wright (1970-1982; 1983), Polk (1984-1992; 1993; 1999a-2005a; 2006a-2010a; 1999b-2005b; 2009b; 2010b; 2006c-2009c; 2010c), Yellow Pages (1970; 1980; 1988; 1989; 1990; 1993; 1994; 1997; 2000; 2001; 2004; 2005; 2006; 2008).,
Sales Figures: Recording Industry of Association of America (2021),
Napster information: Levine (2011).

Fig. 2. Percent of total record stores by neighborhood race/ethnic makeup, Milwaukee county (1970–2010).
Sources:
Census Tract data: Longitudinal Tract Database (LTDB)
Record store locations: Wright (1970-1982; 1983), Polk (1984-1992; 1993; 1999a-2005a; 2006a-2010a; 1999b-2005b; 2009b; 2010b; 2006c-2009c; 2010c), Yellow Pages (1970; 1980; 1988; 1989; 1990; 1993; 1994; 1997; 2000; 2001; 2004; 2005; 2006; 2008).,
Sales Figures: Recording Industry of Association of America (2021),
Napster information: Levine (2011).

majority minority tracts and integrated tracts for the sake of clarity (figures available upon request).[1]

The first pattern of note is that the study area has become increasingly diverse over time, with the percentage of majority Black and Hispanic tracts increasing, and majority White tracts decreasing over the period. This is similar to many US metro areas. The remaining patterns relate to the changing percentage of stores in each of these neighborhood types. When comparing tract and store percentages by race/ethnicity category, it becomes clear that in the early 1970s, a disproportionately low percentage of record stores were found in majority White neighborhoods. Majority White census tracts made up 86% of the total, and 65% of all record stores were found throughout these tracts. On the other hand, a disproportionately high number of record stores were found in majority Black neighborhood. In 1970, although majority Black census tract made up only 7% of the total, 27% of the total number of record stores were located in these tracts. Over time this pattern shifted.

By 2010, 47% of Milwaukee County's tracts were majority White with a proportionate number of all record stores in this area. Majority Black census tracts made up 25% of all tracts, but only 10% of all record stores survived in these areas. A notable moment of change appears in the years leading up to peak CD revenues: the percentage of record stores in Majority White and Black areas appears to converge and then around the year 2000 they diverge away from one another again. Majority Black areas, once a fertile home for material music culture and retail had become decreasingly so over time (confirming findings by Davis, 2011). Conversely, although the percent of majority Hispanic tracts was relatively small over the study period, increasing during the mid-1990s, by 2010, nearly 20% of all record stores were found in the small percentage of these tracts (5%).

Over the study period, national chains largely avoided majority Black, majority Hispanic, and minority majority areas (not shown, figure available upon request), even as they were expanding in majority White areas. National chains did not enter neighborhoods where non-White minorities made up more than 30% of the census tract population. This is consistent with claims by Kwate (2015) and Thompson and Porter (2015) that national chains have actively avoided entering majority Black and minority areas. These findings confirm work by Thompson and Porter (2015), Kwate and Loh (2016), and Charron-Chenier (et al., 2016) who argue that the retail mix of predominantly Black areas have become more homogeneous over time in a process of retail redlining (Kwate, 2015). These findings confirm the assertions of Davis (2011), who suggests that record stores were once more embedded in predominantly Black areas in the USA.

5. Discussion

I expected the number of stores in all areas of Milwaukee County to plummet following the emergence of P2P platforms, and that was the case. Unexpectedly, this downturn seems to be driven by a lack of new store founding. The change in the number of foundings coincide with changes in format, though other unmeasured factors could certainly be at work as well. Fluctuations in credit markets or regional economics could make the risks and benefits of starting up a venture like a record store too unattractive to prospective store owners. It may be that formal (banks) and informal (private partnerships, investors, friends, family) lending sources become unwilling to invest in new ventures during periods of increased risk. When thinking about larger national and regional chains, the drop in foundings may indicate a change in strategy by ownership. For independents, it may just signal an unwillingness on the part of would-be owners to strike out on their own. This is merely

speculation, but personal and economic factors (which I am unable to measure) are likely at play in conjunction with the uncertainty that comes with shifts in format.

The number of music retailers in the Upper Midwest plummeted following the advent of filesharing (Calkins, 2019). This likely played out in a similar fashion across the US and beyond. However, the findings suggest that ultimately, this downturn did not result in an exceptional number of record store closures (as is the common narrative) as much as it must have intensified the risks associated with opening new stores. Losses were frequent, and replacements always seemed to shortly follow, until they did not. The result was net losses over time.

Record stores provide a useful window into the ways digitization has changed the cultural landscape of cities. P2P file sharing technology certainly contributed to the vanishing landscape of music retail, but through the mechanism of decreasing the number of new ventures. This point might be useful for those scholars and analysts looking to better understand what could happen when consumer access to a form of culture is no longer mediated by physical location (films, books, concerts, etc.). All of this is not to say that music is no longer important for everyday urban life, but that the loss of these retailers has altered the cultural landscape, removing the kinds of spaces that Oldenburg (1997) refers to as third places: spaces outside of home and work where urban communities meet to exchange, debate, and engage with one another. Record stores are often described as just this: musical third places.

Here I theorize on the spatio-cultural impact of digitization on cities more broadly. As a "canary in the coalmine", music retailers were one of the first spaces to face the threat of digitization, and as such provide useful clues about what might happen in adjacent sectors. Cultural sectors that disproportionately rely on artificial scarcity will become increasingly threatened by digitization. As they lose their ability to control this scarcity, the perceived risks will increase, such that new ventures will dry up, altering the distribution of these places in the landscape. Failures may not be any more pronounced than previous periods, but the changes will result in net loses. In the context of highly segregated and unequal cities, even as the city becomes increasingly diverse, spaces of physical culture will become concentrated in a smaller number of urban neighborhoods. While record stores provide just one obvious example of this, there may be sectors that are altered by digitization which we can not fully predict yet (virtual reality experiences, three-dimensional printing, etc.). Following this theory, we may speculate that even as artificial intelligence (AI) develops to the point that music produced with it becomes indistinguishable (or less distinguishable) from human-made music, established professional musicians will not likely be forced into retirement. As one of the oldest human activities, people will continue to create music, but AI might further increase the risks involved with investing the time necessary to become a professional musician. Again, this remains to be seen.

6. Conclusion

In this article I have sought to better understand the impact of technological change and racial segregation on the cultural landscape of cities. Employing record store location data from telephone and city directories, music industry format figures from the Recording Industry Association of America (RIAA, 2021), and census-tract demographics, my analysis suggests a number of findings. First, the rise of P2P platforms and digitization did not coincide with exceptional increases in failure as much as they did exceptional decreases in new stores opening, modifying claims by Arditi (2016). Second, predominantly Black areas once had many more brick-and-mortar music retailers, suggesting greater levels of retail homogenization today than in 1970. A third related finding is that national chains largely avoided areas where minority groups made up a majority of the census tract population, contributing to a retail landscape that resembles residential redlining, confirming work by Kwate (2015) and Thompson and Porter (2015).

In the absence of a coherent theory on the matter, I have ventured to

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[1] When both categories are combined (minority majority and integrates) these lines (percent of total tracts, percent of stores in those tracts) are roughly proportionate to one another, rising from around 8% in 1970 to 23% in 2010.

provide something testable in what I call the spatio-cultural impact of digitization. The lack of a more comprehensive dataset limits my ability to test this theory in other contexts, highlighting one of a few similar limitations. First, the use of telephone and city directories allows for an analysis of store founding, failure, and persistence over time, but it does not provide reasons for failure. I assume that changes in format are particularly important for the life of stores (being the chief product of that retail type), but this may not be the case. While I base this assumption on literature that accounts for the experiences of record store owners, the reality might be very different for owners in Milwaukee County. All stores begin with an opening day, and the results of this paper suggest that the distribution of stores in the urban landscape is profoundly shaped by openings, which may stem from the dreams of intrepid independents, the calculated investment of established chains, or many points in between. Future work based on interviews with present and former record store owners and staff would be useful here. This qualitative approach could also address another limitation of using directories, namely that these do not identify the racial or ethnic groups that record store owners belong to. For instance, I cannot say if record store in a predominantly White neighborhood is owned by someone who is White. Considering how stark the racial divisions are in the city of Milwaukee, this would seem most likely. But this is not for certain.

Another limitation of this analysis is the lack of information on format/product mix of stores, which may explain why one store survives and another fails as tastes shift over time. Again, this limitation arises from my reliance on directory entries, which provide a useful account of multiple locations at the cost of greater detail that might come from a more ethnographic approach to studying significantly fewer locations. The use of Milwaukee County as a study area may make the findings of the study less generalizable to different locales, considering the high levels of residential racial segregation. Future work could include year-by-year location data from other metropolitan areas, and for other types of consumption and cultural third places that could be affected by the process of digitization. It might well be true that some kinds of cultural spaces are positively affected or made possible by the move towards postdigital consumption. The research design I use here relies on points in space over time, but future work could go a step further, asking: how have these locations changed, qualitatively? What kinds of spaces have record stores become, if those buildings (or malls) even still exist? Regardless of these limitations and future directions, I argue that the simple analysis I provide here clearly shows that the cultural landscape is altered by technological change and urban inequality.

Record stores are places with rich layers of meaning for some. They are a third place away from home, where exchange and debate can happen. This approach to studying stores necessarily strips away all of the important details of meaning-making and consumption practices in favor of providing an historical account of change over a long period of time (41 years). This long view helps contextualize what changed with digitization. By analyzing the way one field of cultural consumption has shifted over time and space, the findings here contribute to an ongoing discussion around the relationship between consumption and urban change. Namely, they suggest that structural changes to cultural products at higher scales (major media companies, software developments, etc.) can shape where these products are consumed in the urban landscape over time, remaking the physical and cultural landscape of cities.

CRediT Author Statement

Thomas Calkins: Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Visualization, Project administration.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence

the work reported in this paper.

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