

The Geography of Music Preferences

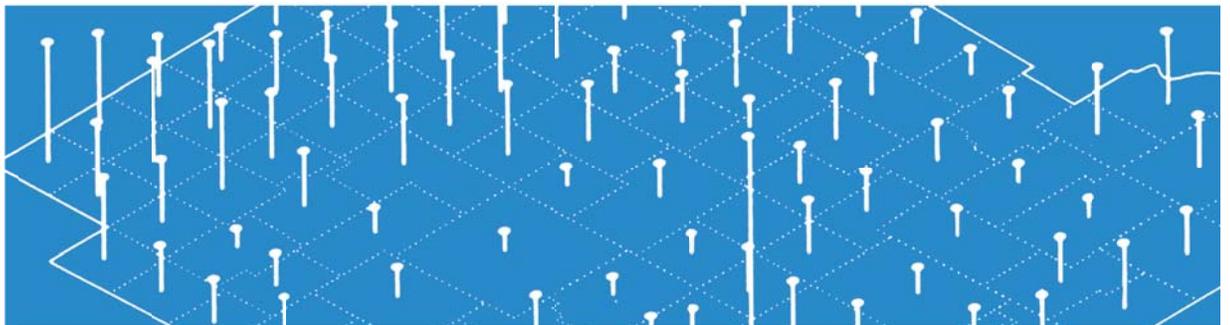
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Abstract

Urbanists and geographers have long noted that cultural attitudes, styles and preferences vary across cities and metro areas, but what about music? This article uses a unique database to examine geographical variation in musical preferences and the economic, demographic and psychological factors that shape them. The research examines the geographic variation of five key categories of music preferences: Mellow, Unpretentious, Sophisticated, Intense, and Contemporary, across 96 of the largest U.S. metropolitan areas. We use factor analysis to identify and map geographical variation of musical preferences and we use bivariate correlation analyses to examine the associations between metro-level musical preferences and key economic, demographic, political, and psychological variables. We find that musical preferences are geographically clustered and that metro-level musical preferences are related to factors such as income, education, occupation, marital status, political preferences, and personality.

JEL: O3 R1 R2 J24

Key words: Music preferences, geography, socio-economic structures

Introduction

Research in geography and urban affairs notes the consistent variation in cultural styles and preferences across cities and regions. This research tends to focus on the consumption of books, magazines, newspapers, film and television (Zelinsky 1974; Weiss 1988c). Yet, attention is shifting to the geographic variation of the production and consumption of popular music (Carney 1998; Scott 1999; Connell and Gibson 2004; Hudson 2006; Florida et al. 2010; Hracs et al. 2011). The present research examines geographic variation in preferences for musical genres across US metro regions and the associations between such preferences and key economic, social, demographic, political and psychological factors that bear on those preferences.

Music plays an important role in our cultural lives. The typical American, for example, listens to roughly 18 hours of music in an average week (Motion Picture Association of America 2007). In other words, people on average spend roughly a fifth of their waking hours with music playing. Music is a very heterogeneous art form. There are myriad musical styles and genres from classical to jazz and blues, R&B and hip-hop, country and religious, rock and pop and people's tastes and preferences for music vary widely not just across demographic groups but also across cities and geographic areas.

Research on the psychology of music (Delsing et al. 2008; North and Hargreaves, 1996; North et al. 1999; Rentfrow and Gosling, 2003; Zweigenhaft, 2008) indicates that preferences are influenced by social and psychological variables. Given the pervasiveness of music in our economy and our social lives, and the fact that places vary so much in terms of their social and economic characteristics, it is surprising that we know so little about the geographical distribution of musical preferences. For instance, are particular musical styles more popular in certain places than in others?

To help fill this gap, our research examines the geography of music preferences across the U.S. metro regions. Drawing from previous research in psychology (e.g., Delsing et al.

2008; North and Hargreaves, 1996; North et al. 1999; Rentfrow and Gosling, 2003; Zweigenhaft, 2008), the present work examines geographical variation in five music-preference dimensions—referred to by the acronym MUSIC – Mellow, Unpretentious, Intense, Sophisticated and Contemporary (Rentfrow et al. 2011).

The central hypothesis guiding our work is that geographic variation in music preferences reflect and are shaped by regional variation in key economic, social, demographic, political and psychological variables. The research is based on a large nationwide survey of approximately 120,000 individuals that assessed individual differences in music preferences. We map music preferences by metro region, and provide a correlation analysis of music preferences and economic, demographic and psychological variables across 96 U.S. metros with a population of 500,000 or more¹. The key findings indicate that music preferences show consistent variation across U.S metros and are tied to differences in economic, social, demographic and psychological variables

CONCEPTS AND THEORY

Regional Differences in Consumer Preferences

There is considerable evidence that reveals persistent geographic variation in people's cultural, social and political attitudes and preferences. For example, Zelinsky (1974) examined cultural differences in the U.S. using magazine subscriptions obtained from publishing companies. He conducted factor analyses of magazine subscriptions at the state level to identify dimensions of reading preferences, and then explored how these reading-preference dimensions varied across the country. The results revealed a number of interesting factors and geographical patterns. For example, one factor, which was labeled "Southern," comprised subscriptions to hunting, nature, wildlife, and romance magazines and was

¹ Out of the 120,000 observations, 92,000 live in metros with 500,000 or more in population. We restrict our analysis to these biggest regions to assess that we have a large enough set of observations for each metropolitan region.

concentrated predominantly in the southern states. Another factor, labeled “Urban Sophistication,” comprised subscriptions to art, fashion, music, and political magazines and was most common in the mid-Atlantic and west coast states. Furthermore, these preference dimensions were related to various social and economic indicators. For instance, the Southern magazine preference factor was high in regions with high proportions of blue-collar workers, low-income families, and small proportions of foreign-born residents, whereas the Urban Sophistication factor was high in urban regions with large proportions of immigrants, white-collar workers, and large proportions of college-educated residents.

Weiss (1988) examined geographic differences in consumer behavior using market research data and identified several clusters of subcultures. For example, one cluster, labeled “Red, White, & Blues” was defined by preferences for auto-racing, hunting, doughnuts, *Outdoor Life*, Rush Limbaugh, and Dodge pick-up trucks, and was most concentrated in the mid-west and in pockets of the southeast. Another cluster, labeled “Money & Brains,” was defined by preferences for theatergoing, public broadcasting, Brie, *Wall Street Journal*, *Meet the Press*, and Alfa Romeos, and was most concentrated in the mid-Atlantic, New England, and west coast regions. Each of the clusters was also uniquely related to local demographic, educational, political, and economic variables. Preferences for leisure activities also vary systematically across regions and cities.

The available research strongly suggests that there are meaningful geographical differences in what people read, how they use their free time, and what they spend their money on. Furthermore, these preference dimensions appear to reflect information about cultural values that are common to particular areas. The high interest in hunting and wildlife magazines, pick-up trucks, and right-wing politics in the Southern U.S. reflects an orientation toward the outdoors, independence, self-sufficiency, and personal freedom, whereas the high degree of interest in the arts, fashion, foreign foods, and business in the Northeast reflects an

orientation toward cosmopolitan values, creativity, openness, and enterprise. Although reading preferences and consumer behavior would appear to provide good proxies for regional values, one important facet of everyday life that has not been examined geographically is music. Thus, it is logical to question if there are there regional differences in music preferences and whether geographical differences in music preferences reflect meaningful information about the economic, political, social, or psychological characteristics of regions.

Music Preferences as Representations of Culture

Music is important to people because it serves a variety of functions: People listen to music to experience pleasure, to pass the time, to regulate their moods, to connect with others, to create an ambience, to concentrate, to increase physiological arousal, and to convey an image of themselves to others (Boer et al. 2011; Levitin 2006; North et al. 2004; Rentfrow and Gosling 2003; 2006; 2007). There is also evidence that preferences for music are linked to basic psychological characteristics, such as personality, intellectual ability, self-identity, and values (Delsing et al. 2008; George et al. 2007; Rentfrow and Gosling 2003; Zweigenhaft, 2008). Given its prevalence and the important role it plays in people's daily lives, it is worth considering how investigating geographical variation in music preferences might inform our understanding of the cultural landscape.

Social factors influence music preferences. Much research concerned with understanding music preferences has focused on the demographic characteristics of listeners. Sociological research suggests that social class is linked to music preferences, such that upper class and well-educated individuals prefer "highbrow" music genres, such as classical, opera, and big band, whereas working-class and less educated individuals tend to prefer "lowbrow" music, such as country, gospel, and rap (Katz-Gerro 1999; Mark 1998; Van Eijck 2001). More recent studies using British and Israeli samples have emphasized, however, that social

status is a better indicator of musical tastes or consumption than class (Chan and Goldthorpe, 2007; Katz-Gerro et al. 2007).

Where one lives also appears to be a factor contributing to music preferences. Using data from the 1993 General Social Survey, Katz-Gerro (1999) found that individuals living in urban environments displayed strong preferences for avant-garde music, whereas individuals in suburban and rural environments had stronger preferences for rock and oldies music.

Additional evidence for the power of place on music preferences comes from work by Fox and Wince (1975), who found that individuals from small farm towns preferred folk, rock, and country music, while individuals from larger regions preferred jazz and blues music.

Psychological factors influence music preferences. There is growing evidence that musical preferences are also linked to personality characteristics as well as economic and sociological factors. Much of the research on the psychology of music preferences is based on the idea that people prefer musical styles that reflect and reinforce their psychological needs. As a starting point for studying the links between music preferences and personality, a number of studies have begun to investigate the structure of individual-differences in music preferences (Colley 2008; Delsing et al. 2008; Dunn et al. 2011; Rentfrow and Gosling, 2003). Results from these studies converge at approximately 5 music-preference factors that can be described as Mellow, Unpretentious, Sophisticated, Intense, and Contemporary, or MUSIC (Rentfrow et al. 2011; 2012). The Mellow music-preference dimension reflects music that is romantic, relaxing, unaggressive, sad, slow, and quiet; Unpretentious is defined by music that is uncomplicated, relaxing, unaggressive, soft, and acoustic; Sophisticated is defined by music that is inspiring, intelligent, complex, and dynamic; the Intense dimension is defined by pieces of music that are distorted, loud, aggressive, and not relaxing, romantic, nor inspiring; and the Contemporary preference dimension is defined by music that is percussive, electric, and not sad.

Researchers have also begun to examine connections between music-preference dimensions and various psychological traits. Several studies indicate that individuals with strong preferences for sophisticated musical styles, like classical, opera, or jazz, score high on psychological measures of creativity, curiosity, intelligence, and political liberalism (Rentfrow and Gosling, 2003). There is also evidence that people who enjoy intense styles of music, like rock, heavy metal, and punk, score high on psychological measures of thrill-seeking, openness, and also value freedom and independence (Rentfrow and Gosling 2003; 2006; McNamara and Ballard 1999; Zweigenhaft 2008).

The links between music preferences and personality are in line with the view that individuals create auditory environments that match their psychological states, making it reasonable to suggest that people prefer styles of music that are consistent with their personalities. Accordingly, people high in sensation seeking are drawn to intense styles of music because such music satisfies their need for physiological stimulation; extraverts enjoy music that is sociable and enthusiastic because it feeds their appetite for social stimulation and positive affect; open minded people enjoy varied and creative styles of music because it fulfills their need to experience new things; and highly intellectual people prefer styles of music that are abstract and complex because it satisfies their need for cognitive stimulation. Thus, the music people enjoy listening to reflects and reinforces their psychological needs.

Summary. Theory and research in geography and urban affairs identifies consistent variation in cultural preferences and also identifies a link between these observed cultural preferences and the underlying economic, demographic and political characteristics of cities and regions. Research in sociology and psychology also indicates that music is related to differences in the psychological profiles of cities, regions and states. The music people listen to reflects something about who they are: where they are from, their values, their personalities, and their lifestyles. Furthermore, there appears to be a robust structure

underlying music preferences, and preferences appear to reflect the economic, social and psychological characteristics of places.

Aims of the Current Research

The present research builds from these literatures to empirically examine the distribution of music preferences across 96 of the biggest U.S. metropolitan regions and to explore the extent to which geographical variation in preferences reflect the socio-economic, cultural, political and psychological characteristics of metro regions. We expect that: (1) music preferences will vary substantially across metro regions, and (2) that such variation will reflect and be shaped by regional variation in underlying economic, demographic, cultural and psychological factors.

To test these claims, we employ data from a large-scale Internet survey involving approximately 120,000 individuals. 92,000 of these live in big metropolitan regions with more than 500,000 in population, and these regions are the focus of our analysis. We assess individual differences across the five major MUSIC preferences. We use factor analysis to identify the geographic structure of these preference. We then map the geographic variation in each of the five major preference dimensions. We also conduct bivariate correlation analyses of the associations between these music preferences and key economic, demographic, political, and psychological variables.

Primary Data

The music preferences data were collected as part of an ongoing study of music preferences involving volunteers assessed over the World Wide Web (<http://www.outofservice.com/music-personality-test/>). The website is a non-commercial, advertisement-free website containing a variety of psychology measures. Potential respondents could find out about the site through several channels, including search engines,

or unsolicited links on other websites. The data reported in the present research were collected between 2001 and 2013.

Respondents volunteered to participate in the study by “clicking” on the music-preference test icon and were then presented with a series of questions about their music preferences, personalities, demographic characteristics, and place of residence. After responding to each item and submitting their responses, participants were presented with feedback about the music preferences based on their responses to the items.

Participants. As in all studies that collect data from individuals over the Internet, there is the possibility that respondents may complete a survey multiple times. Repeat responding has the potential to produce unreliable and misleading results so it was necessary to remove data from potential repeat responders.

Screening. In the present study, several criteria were used to eliminate repeat responders. First, one question included in the survey asked: “Have you ever previously filled out this particular questionnaire on this site?” If respondents reported completing the questionnaire before, their data were excluded. Second, IP addresses were used to identify repeat responders. If an IP address appeared two or more times within a one-hour period, all responses were deleted. Third, if an IP address appeared more than once in a time span of more than one hour, consecutive responses from the same IP address were matched on several demographic characteristics (gender, age, ethnicity) and eliminated if there was a match. Finally, only respondents who indicated that they lived in a metropolitan region with more than 500,000 inhabitants were included².

Demographics. Implementation of the aforementioned criteria resulted in complete data for 119,316 individuals, out of which 91,948 respondents live in metropolitan regions with more than 500,000 individuals (59% female). The median age of respondents was 24 years

² We exclude metropolitan regions with less than 500,000 in population, to assure that we have enough observations in each region. However, we ran the analysis for all metropolitan regions as well, even though the number of individuals that took the survey sometimes was relatively low.

($SD = 11.04$ years). Of those who indicated, 5,300 respondents (6%) were African American; 6,104 (7%) were Asian; 6,444 (7%) were Latino; 68,644 (75%) were White; and 4,832 (5%) indicated “Other.”³ Of those who provided information about their social class, 9,640 (21%) were working class; 9,127 (20%) were lower-middle class; 17,964 (39%) were middle class; 7,847 (17%) were upper-middle class; and 1,131 (2%) were upper class.

Representativeness. To ensure that each metropolitan region was fairly represented, we correlated the percentage of total respondents from each metropolitan region in our sample with the percentage of the total U.S. population for each metro using data from the U.S. Census Bureau (2010). The percentage of respondents from each metro in our sample was directly proportional to the 2010 U.S. Census Bureau’s estimates of the population of each metro, $r = .96$.

Past research on Internet-based surveys suggests that minority groups are vastly underrepresented on the Internet (Lebo 2000; Lenhart 2000). Therefore, to determine whether our sample overrepresented individuals from particular racial groups or social classes, we correlated the percentage of respondents for each group from the Internet sample with the percentage of the population of that group within each metro. For example, we correlated the percentage of Asian respondents from each metro with the U.S. Census Bureau’s estimate of the percentage of Asians in each metro. The correlations for African Americans, Asians, Latinos, Whites, and “Other” ethnicities, respectively, were .92, .94, .95, .74, and .67, all $ps < .001$.

Overall, these analyses indicated that our Internet-based sample was generally representative of the population at large. Indeed, with the exception of “Other” ethnicities, the racial composition of our sample matched almost perfectly the U.S. Census Bureau’s population estimates. It appears as though our sample underrepresented individuals from

³ The equivalent numbers for the 119,316 individuals across all metros were; 5% African American; 6% Asian; 6% Latino; 77% White; 5% “Other” for race; 23% working class, 21% lower middle-class, 38% upper middle-class, and 2% upper class for class.

lower and upper classes, but the sample is still far more representative of the U.S. population than are most psychological studies that rely on convenience samples (Gosling et al. 2004).

Identifying Music Preferences:

Music preferences were measured using the revised version of Rentfrow and Gosling's (2003) Short Test of Music Preferences (STOMP-R). The STOMP-R is a 21-item survey designed to measure individual differences in musical preferences. Using a rating scale with endpoints at 1 (*Dislike*) and 7 (*Like*), respondents indicate the degree to which they like each of the following music genres: alternative, bluegrass, blues, classical, country, electronica, folk, gospel, heavy metal, rap, jazz, new age, opera, pop, punk, reggae, religious, rock, soul/R & B, funk, and world. Unlike the MPS, the STOMP does not provide exemplar musicians or bands for each genre, as such information could potentially alter respondents' conception of the genre (Rentfrow and Gosling, 2003).

Secondary Data

We use a variety of secondary data to examine the relationships between music preference and regional economic, demographic, political, cultural and social psychological characteristics.

Economic:

Economic: We use several indicators of metro economies. As an indicator of economic productivity, we used gross regional product per capita (GRP), which is a measure of the value that is being produced in a metropolitan region in a year divided by metro population. The data used were for 2010 and taken from the U.S. Bureau of Economic Analysis. We also examined wage or salary income, including net self-employment income from the 2010 U.S. Census, as well as average earning per hour and hours worked per week based on the 2010 Bureau of Labor Statistics.

Occupational and Educational:

Occupation: Occupation provides another take on socioeconomic class, reflecting the kind of work people do. Our occupational indicators are based on the 2010 Bureau of Labor Statistics occupational data, which categorizes occupations based on the work-task. Creative workers are assumed to have more autonomy and work with more complex problems. This includes occupations such as computer and math occupations; architecture and engineering; life, physical, and social science; education, training, and library positions; arts and design work; and selected entertainment, sports, and media occupations. Working class occupations are low both in complexity and autonomy. Here we include traditional manufacturing jobs such as construction and extraction, installation, maintenance and repair, production, transportation and material moving occupations. All three occupational groups are measured as the share of the metropolitan region labor force.

Education: We also examined educational attainment or “human capital,” measured as the share of the labor force with a university degree of three years or more, taken from the 2008-2010 U.S. Census.

Demographic:

Population and Density: We examine both population size and population density. Both indicators are from the ACS U.S. Census data for the year 2010, and the density measure was population weighted from city hall to better capture the degree of density around the urban core of the metro.

Race: We include the white, black and Hispanic share of the population. All variables are from the 2008-2010 ACS data from the U.S. Census. The proportion of immigrants in each metropolitan region represents the foreign-born share of the population and is from the 2010 U.S. Census.

Marital Status: We examine several indicators of marital status, including the share of single households, married share of the population, the share of 15 to 19-year-old men and women that are married, and the share of the population that is divorced. These variables were based on the 2008-2010 Census data.

Politics:

Politics: As metro-level indicators of political opinion, we used the metro-level share of votes cast in the 2012 U.S. Presidential election for Obama and Romney. The data were obtained from the Office of the Clerk, U.S House of Representatives.

Social Psychology:

Well-Being: Our indicator of well-being is from the Gallup Organization's Well-Being Index for year 2010. The index takes into account; emotional health, work quality, basic access, healthy behavior, physical health and life evaluation. Religiosity measures the importance of religion in daily life. The question was included in the Gallup Daily Poll and the values are from 2010

Social Tolerance: We include two indicators that capture social tolerance. The gay index is a location quotient for gay and lesbian households and is based on data from the 2010 U.S. Census. The bohemian index is a location quotient for arts and design related occupations and is also based on data from the 2010 U.S. Census.

Personality: Personality is conceptualized in terms of the Big Five (John et al. 2008; McCrae and Costa 2008), which comprises five broad dimensions of personality: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. Metropolitan-level scores for each big-five domain were available from Rentfrow et al. (2008).

Methods

We were interested in metro-level trends in musical preferences, so we aggregated individual-level preferences for each genre among respondents who reported living in each of the metropolitan areas. Then we examined the factor structure of the metro-level musical preferences. Specifically, we conducted a principle components analysis with varimax rotation on the metro-level music preferences to determine whether preferences can be characterized in terms of a set of meaningful dimensions. We used the results from the factor analysis to map geographic variation in musical preferences. We then used bivariate correlation analysis to relate the variation in these music preferences to key economic, social, political and psychological variables described above. We prefer not to employ a multivariate regression analysis, since we do not assume any form of causality, but are mainly concerned with identifying relations between music preferences and key economic, social, political and psychological factors.

Findings

Metro-Level Music-Preference Dimensions

We begin by examining the variation in music-genre preferences at the metro level of analysis. Previous research on musical preferences has focused on the individual level, and because the present work is focused on the aggregate level, it was important that we determine whether the same factor structure exists at the regional level. We calculated the metro-level mean scores for each music genre. Table 1 provides the descriptive statistics for the metro-level music preferences.

[Table 1 about here]

On average, rock and alternative were the two music genres most highly ranked at the regional level, followed by pop and classical. The least liked music genres were religious, gospel, opera, and bluegrass. Religious, bluegrass, and country music genres had the largest

standard deviations across regions, while rock, alternative, oldies and new age preferences varied the least.

To identify metro-level music-preferences, we conducted a principal components analysis with varimax rotation. This analysis identified five components with eigenvalues greater than one, the scree plot showed an ‘elbow’ at roughly six factors, and each factor comprised items with few cross-loading genres. All in all, the factors resembled the MUSIC preference model observed in previous research at the individual level (Rentfrow et al. 2011; 2012). To formally test the extent to which the metro-level factor structure captured the individual-level MUSIC factors, we examined the factor congruence coefficients between the metro-level factor loadings and individual-level factor loading reported by Bonneville-Roussy et al. (in press). The results from this analysis strongly suggested that the five music-preference factors were virtually identical to the MUSIC factors observed in individual-level research on music preferences. Indeed, the factor congruence coefficients for each factor exceeded Lorenzo-Seva and ten Berge’s (1977) threshold of .85 (factor congruence coefficients = .91, .87, .92, .93, and .92, M, U, S, I, and C, respectively).

[Table 2 about here]

The metro-level factor structure is shown in Table 2. As can be seen in the first data column, the genres with their primary loadings on the Mellow factor are electronica and new age. The genres with primary loadings on the Unpretentious factor are religious, country, gospel, and pop. The genres with the largest loadings on the Sophisticated factor are folk, bluegrass, blues, jazz, opera, classical, and world. The genres with the largest loadings on the Intense factor are heavy metal, rock, punk, and alternative. The genres with the highest loadings on the Contemporary factor are rap, soul, funk, and reggae. All in all, the patterns of factor loadings appear quite similar to those observed in research at the individual level

(Bonneville-Roussy et al., in press; Delsing et al., 2008; Rentfrow and Gosling, 2003; Rentfrow et al., 2011).

Mapping the Geography of Music Preferences

Given the results from the metro-level factor analyses, we were interested in examining the geographical distribution of music preferences and exploring connections between preferences and various social indicators. To do so we computed metro-level factor scores to represent each metropolitan region's degree of preference for each of the MUSIC factors. The maps below show the geographic distribution for each of the five music-preference dimensions based on the factor analysis.

Mellow. Figure 1 maps mellow music preferences by metropolitan region. The top ten metros on this dimension are Provo-Orem, UT; McAllen-Edinburg-Mission, TX; Salt Lake City, UT; El Paso, TX; Ogden-Clearfield, UT; Fresno, CA; Palm Bay-Melbourne-Titusville, FL; Boise-Nampa, Idaho; Tampa-St. Petersburg-Clearwater, FL; Albuquerque, NM; and Miami- Ft. Lauderdale-Pompano Beach, FL.

[Figure 1 about here]

Unpretentious. Figure 2 maps unpretentious music preferences by metropolitan region. The top ten metros on this dimension are Jackson, MS; Charleston-North Charleston-Summerville, SC; Little Rock-North Little Rock-Conway, AR; Memphis, TN-MS-AK; Oklahoma City, OK; Chattanooga, TN-GA; Birmingham-Hoover, AL; Greenville-Mauldin-Easley, SC; Provo-Orem, UT; and San Antonio, TX.

Unpretentious metros are mainly clustered in the traditional south, Mississippi, South Carolina, Arkansas, Tennessee, Georgia, Alabama and Texas as well as Utah.

[Figure 2 about here]

Sophisticated. The map of metropolitan-wide preferences for sophisticated music is plotted in Figure 3. The top ten metros on this dimension are Austin-Round Rock, TX; San Francisco-Oakland-Fremont, CA; Jackson, MS; Greensboro-High Point, NC; Madison, Wisconsin; Rochester, NY; Columbia, SC; Charleston-North Charleston-Summerville, SC; Nashville-Davidson-Murfreesboro-Franklin, TN; and Albuquerque, NM.

Sophisticated metros are mainly clustered in the Sun Belt and West. Austin is first and San Francisco second, while Nashville (a leading center for music production) is ninth.

[Figure 3 about here]

Intense. The map of preferences for intense music is shown in Figure 4. The top ten metros on this dimension are Scranton-Wilkes-Barre, PA; Chattanooga, Tennessee; Las Vegas-Paradise, NV; Youngstown-Warren-Boardman, OH-PA; Greenville-Mauldin-Easley, SC; Albuquerque, NM; Portland-South Portland-Biddeford, ME; Colorado Springs, CO; Allentown-Bethlehem-Easton, PA-NJ; and Albany-Schenectady-Troy, NY.

Intense music is more broadly distributed with clusters across the Northeast, Midwest, South and West.

[Figure 4 about here]

Contemporary. The map of preferences for contemporary music is shown in Figure 5. The top ten metros on this dimension are Charleston-North Charleston-Summerville, SC; San Francisco-Oakland-Fremont, CA; Modesto, California; Richmond, VA; Des Moines-West Des Moines, IA; Orlando-Kissimmee, FL; Omaha-Council Bluffs, NE-IA; Memphis, TN-MS-AK; Birmingham-Hoover, AL; and Rochester, NY.

Leading contemporary music metros are located in the South and West, especially California and Iowa as well as the Northeast.

[Figure 5 about here]

Correlation Analysis

The maps of the MUSIC preference dimensions reveal interesting geographic patterns: But how meaningful are those differences, and what underlying factors are they associated with? To develop a better understanding the factors that are associated with these observed regional difference, we conducted a correlation analysis relating each of the five major music-preference factors to key economic, social, demographic, political and psychological variables. As notes above, we ran correlations between the preference factors and indicators instead of multivariate regression analyses because there may be mutual dependence between music preferences and socio-economic factors – surroundings may affect music preferences and, at the same time, preferences may affect behavior. The results of the correlation analysis are displayed in Table 3.

[Table 3 about here]

Mellow. The correlations for Mellow music preference are reported in the first data column of Table 3. Metros with comparatively strong preferences for Mellow music had large shares of the Hispanic people ($r = .62$), large shares of foreign born ($r = .52$), and low shares of the Black and African American population ($r = -.39$). These metros also had low shares of single households ($r = -.62$), and are places where both men and women marry younger ($r_s = -.40, -.54$, share of young men and women that are married, respectively). Mellow music metros also tend to have higher population densities ($r = .38$). Mellow music preferences are more modestly correlated with well-being and working class occupational structures, and negatively associated with per capita income ($r = -.23$).

Unpretentious. The correlations for Unpretentious music preference are shown in the second data column. The strongest correlation by far is for religion ($r = .80$). Unpretentious music preferences are also significantly associated with working class occupations ($r = .48$)

and negatively associated with the creative class ($r = -.36$) as well as the share of college graduates ($r = -.37$). Unpretentious preferences are also related to political preferences (being positively correlated to Republican votes in the 2012 election ($r = .54$, and negatively associated with Democratic votes $r = -.55$). Unpretentious music metros tend to be less well-off economically, with negative correlations to average wage ($r = -.59$), income per capita ($r = -.56$), wage per hour ($r = -.44$), and GRP per capita ($r = -.27$). Unpretentious preferences are associated with larger black populations ($r = .39$). Unpretentious metros have lower levels of foreign-born populations ($r = -.34$), bohemians ($r = -.39$), and gays and lesbians ($r = -.28$). Unpretentious metros have fewer single households ($r = -.19$) and more men ($r = .22$) and women ($r = .40$) who marry young. In terms of personality, unpretentious metros are high in agreeableness and conscientiousness (both $r = .48$).

Sophisticated. The correlations for Sophisticated music preference are listed in the third data column in Table 3. Metros with preferences for sophisticated music have higher levels education (college graduates, $r = .45$) and of the creative class ($r = .34$). These metros also have higher levels of gays and lesbians ($r = .43$ to the Gay Index), and lower shares of white population ($r = -.22$). Sophisticated preferences are also related to income and affluence though more modestly, with positive correlations to economic output per capita ($r = .27$) income ($r = .22$) and hourly earnings ($r = .22$), as well as to overall well-being ($r = .36$). In terms of personality, sophisticated preferences at the metro level are positively associated with openness personalities ($r = .43$).

Intense. The correlations for Intense music preference are provided in column four of Table 3. Intense music preferences were associated with larger concentrations of white residents ($r = .35$), smaller shares of black residents ($r = -.21$), and smaller shares of gays and lesbians ($r = -.20$). Intense music preferences are associated with lower earnings per hour ($r = -.21$) and also fewer working hours ($r = -.23$). Intense music preferences are also negatively

associated with overall well-being ($r = -.18$). In terms of personality, intense preferences are positively associated with neuroticism ($r = .33$) and negatively with agreeableness ($r = -.25$).

Contemporary. The correlations between Contemporary music preferences are shown in the last data column of Table 3. Metros with stronger preferences for Contemporary music are more affluent, with positive correlations to GRP per capita ($r = .30$), income per capita ($r = .22$), average wages ($r = .23$), and wage per hour ($r = .25$). These metros also have somewhat lower shares of working class ($r = -.20$). Contemporary music metros have lower shares of white residents ($r = -.44$), higher levels of black residents ($r = .30$), as well as foreign-born people ($r = .26$), and gays and lesbians ($r = .46$). Married household also make up smaller shares of their population ($r = -.35$). Politically, Contemporary music metros lean Democratic ($r = .39$ to Obama votes) as opposed to Republican ($r = -.39$ to Romney votes). There is a negative association to religiosity ($r = -.26$). Contemporary music metros tend to be bigger in size ($r = .27$ with population). In terms of personality, contemporary music preferences are significantly associated with openness ($r = .25$).

Discussion and Conclusions

The primary aim of the research was to examine geographic differences in music preferences and to identify the economic, social, demographic, political and psychological factors that are associated with them. The maps revealed reasonably clear geographic difference and the results from the correlation analysis suggest that these differences turn on the underlying economic, social, demographic and psychological characteristics of regions.

The Mellow music factor is defined primarily by preferences for electronica and new age music: The genres on the factor comprise subgenres with relaxing, easygoing, and atmospheric music, and are associated with environmentalism and spirituality. Mellow music was preferred in metros in the Sunbelt, Mountain and West Coast regions of the country. These are places where the weather is comparatively sunny and dry, and the landscapes are

rich and scenic. This preference factor is associated with higher shares of Hispanic residents, larger shares of married households, higher densities, higher levels of well-being, but lower incomes and more working class structures. Preferences for this style of music was also linked to high levels of Openness. These findings suggest that Mellow music is enjoyed in places where residents are creative, happy, married, and the weather is good.

Unpretentious music is defined primarily by country and roots music. It was preferred among metros in the Deep South as well as Utah. It was strongly associated with religiosity; in fact the correlation was by far the strongest of any in our analysis. It was also associated with more working class and less advantaged socioeconomic structures, greater shares of married households, higher shares of Black populations, conservative political identification, and agreeable and conscientious personalities. The psychological characteristics that are strongly associated with unpretentious metros suggest that residents are friendly, considerate, hardworking, and dependable. These patterns of results seem consistent with the historical roots of country music, which began in south-western Virginia, Western North Carolina, Northern Georgia, middle Tennessee and Northern Arkansas. In addition to the geographical origins, this musical style is also liked in the Bible belt, an area of the south eastern United States spanning from Texas to South Carolina and characterized by strong evangelical Christian sentiment. Unpretentious music is also popular in the Southern Area identified by Zelinsky (1974) as favoring magazines about sports, hunting, guns, and gardening. Taken together, it appears that the concentration of preferences for unpretentious music in the Southern U.S. is a reflection of both the historical roots of the music as well as the economic, psychological, political, and social characteristics of residents in that region.

The genres that define the Sophisticated music dimension include classical, opera, jazz, and folk. Sophisticated metros are mainly clustered in the Sun Belt and West, and include Austin, San Francisco and Nashville among the top ten. Sophisticated music metros are more

affluent, more education, have higher shares of the creative class, exhibit higher levels of social tolerance, and have higher rates of well-being. Residents of these regions are also high in Openness, a personality trait that is more common among artists, scientists, and entrepreneurs (Barrick and Mount, 1991; Zhao et al. 2010). Simply put, metros where preferences for this music factor are strong appear to be culturally diverse, wealthy, well educated, and residents are content with their lives, socially tolerant, open-minded, and politically liberal. The geographical distribution of preferences for sophisticated music resemble Zelinsky's (1974) map of the Urban Sophistication region, where residents subscribe to magazines about opera, jazz, fine art, fashion, and gourmet food. Given that the East and West coasts are cultural magnets for the arts and home to many of the country's most prestigious educational institutions, it seems reasonable to suppose that the regional patterning of sophisticated music preferences reflects, to a certain degree, the cultural values and lifestyles of residents in the region.

The key genres that make up Intense music are heavy metal, punk, and rock. Its geography is more widespread, as its leading centers are mainly small and medium sized metros in Northeast, Midwest, South and West. It is associated with larger concentrations of White residents, lower levels of economic advantage and work effort, lower levels of well-being, and lower levels of social tolerance. It is positively associated with Neuroticism and negatively associated with Agreeableness, suggesting residents in these areas are anxious, unhappy, wary, and distant. This is consistent with Harrison's (2010) observation that intense musical styles are rooted in the white working class culture of older industrial cities. Today, heavy metal finds its audience mainly in young Caucasian males from lower and middle-class background in urban and suburban environments (Krenske and McKay 2000; Reddick and Beresin 2002).

Contemporary music-preference is defined by preferences for rap, soul, funk and reggae music. These are popular genres with a broad base of support across metros and we find large concentrations in metros in the South and West, especially California, as well as the Northeast. Metros with stronger preferences for Contemporary music are larger, more affluent, have larger shares of Black residents, higher levels of social tolerance, are more secular than religious, have more single people, a more liberal political orientation, and are higher in Openness. The styles of music on the Contemporary dimension are typically associated with nonwhite audiences (Rentfrow et al. 2009) and the demographic composition of the regions high on this preference factor is generally more culturally and ethnically diverse compared to regions with weak preferences for contemporary music. Thus, it would seem that preferences for this music factor reflect, at least to some degree, the racial and ethnic makeup of a region.

It is also worth reiterating the degree of similarity between the current results and previous research on consumer preferences. For example, the geographical pattern of preferences for sophisticated music is remarkably similar to the patterns Zelinsky (1974) observed with his “Urban Migrant” and “Urban Sophistication” magazine-subscription factors and that Weiss (1988) observed with the “Money & Brains” cluster. Moreover, the social characteristics of states where sophisticated music is popular are in line with those reported in previous research (Weiss 1988; Zelinsky 1974). Considering that Zelinsky’s (1974) magazine subscription data were for 1970 and 1971, the fact that the results are so similar suggests that some of these preference dimensions are persistent and deeply ingrained local cultures.

Although the metro-level music factors and the geographic distribution of those factors are consistent with previous theory and research, the present results are based on a sample of self-selected participants who completed a self-report survey on the Internet. It is conceivable that people who volunteered to complete a survey about their music preferences may be more

committed to music than the average person, so data based such participants may not be representative. It would certainly be ideal to have a nationally representative sample of Americans complete a music-preference survey, but there are good reasons to believe that the current data are sound.

Research on Internet-based studies indicates that Internet users are not perfectly representative of the general population (Lebo 2000; Lenhart 2000), but Internet-based samples are much more diverse and considerably more representative than the convenience samples commonly used in social-science research (Birnbaum 2004; Gosling et al. 2004; Skitka and Sargis 2006). Furthermore, similar results are typically obtained across Internet and non-Internet samples, including studies of music preferences (Rentfrow et al. 2011; Rentfrow et al. 2012; Rentfrow and Gosling 2003), and Internet-based studies tend to yield data that are comparable or of better quality than studies relying on paper and pencil, face-to-face, and telephone surveys (Richman et al. 1999; Skitka and Sargis 2006).

The similarity between the current findings and those from previous research suggests that the results are robust. Nonetheless, it would be useful to obtain music-preference data for a nationally representative sample to evaluate the generalizability of the current results to other samples. Additionally, it would be useful to map music preferences using behaviorally revealed music-preference information. Geographic data on music sales, digital downloads, or listening data from music-based online social networks (e.g., LastFM, Spotify) would provide compelling behavioral data to compare with the current results.

It appears that music can serve as a proxy for regional subcultures in the U.S. Each of the music-preference dimensions appears to be clustered in particular regions of the country and is uniquely related to various economic, occupational and educational, demographic, political, and social-psychological indicators. These findings broaden our understanding of the cultural divides in the U.S. by revealing that the music people choose to listen to is

reflected in the economic circumstance, values and lifestyles, political orientation and psychological profiles of U.S. metros.

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Table 1. Descriptive statistics for music genres

	N	Minimum	Maximum	Mean	Std. Deviation
Alternative	97	4.67	5.52	5.19	0.13
Bluegrass	97	2.47	3.61	3.07	0.23
Blues	97	3.52	4.52	3.98	0.18
Classical	97	3.86	4.82	4.36	0.19
Country	97	2.81	4.06	3.36	0.23
Electronica	97	3.64	4.46	4.04	0.17
Folk	97	2.83	3.94	3.40	0.20
Funk	97	3.30	4.05	3.62	0.14
Gospel	97	2.36	3.41	2.79	0.19
Heavy metal	97	3.43	4.45	3.88	0.19
Jazz	97	3.53	4.56	4.07	0.18
New Age	97	3.12	3.95	3.52	0.14
Opera	97	2.47	3.28	2.84	0.18
Pop	97	4.11	4.79	4.41	0.13
Punk	97	3.64	4.50	4.23	0.15
Rap	97	3.11	4.37	3.68	0.19
Reggae	97	3.41	4.40	3.76	0.18
Religious	97	2.12	3.51	2.74	0.31
Rock	97	5.51	6.16	5.86	0.12
Soul	97	3.57	4.49	3.98	0.18
World	97	3.20	4.25	3.60	0.20

Table 2. Five varimax-rotated principal components for individuals and for regions (based on the regional average scores)

Genre	Music-Preference Factors				
	M	U	S	I	C
Electronica	0.80	-0.08	-0.07	-0.03	0.42
New Age	0.73	0.38	-0.27	0.00	-0.17
Religious	0.06	0.93	0.04	-0.15	-0.03
Country	0.04	0.90	0.07	0.02	0.03
Gospel	0.01	0.70	0.45	-0.24	0.27
Pop	0.36	0.49	-0.14	-0.42	0.39
Folk	0.01	-0.09	0.89	-0.02	-0.20
Bluegrass	-0.02	0.33	0.86	-0.01	-0.03
Blues	-0.02	0.25	0.85	0.10	0.27
Jazz	0.15	-0.01	0.81	-0.07	0.33
Opera	0.52	0.10	0.73	0.02	0.13
Classical	0.65	0.15	0.66	0.09	-0.03
World	0.57	-0.30	0.64	-0.11	0.22
Heavy metal	0.01	0.09	-0.20	0.86	-0.26
Rock	-0.30	-0.13	0.30	0.74	-0.25
Punk	0.27	-0.48	-0.16	0.72	0.02
Alternative	0.42	-0.20	0.37	0.48	0.06
Rap	0.04	0.12	-0.18	-0.21	0.87
Soul	0.10	0.24	0.26	-0.27	0.78
Funk	0.07	-0.06	0.60	0.09	0.64
Reggae	0.26	-0.23	0.41	-0.06	0.63

Note. M = mellow, U = unpretentious, S = sophisticated, I = intense, C = contemporary. Primary positively signed factor loadings are highlighted in bold. $N = 96$

Table 3. Metro-level correlations between music preferences and socio-economic indicators

Indicator	Music-Preference Factors				
	M	U	S	I	C
<i>Economic</i>					
GRP per Capita	-.127	-.268***	.272***	-.111	.297***
Income per Capita	-.227**	-.559***	.218**	-.097	.224**
Average Wage	.020	-.589***	.169	-.205**	.232**
Wage per Hour	.002	-.436***	.215**	-.234**	.253**
Hours per Week	.115	.240**	-.049	.058	.118
<i>Occupational & Educational</i>					
Creative Class	-.065	-.361***	.342***	-.127	-.142
Working Class	-.193*	.480***	-.201**	.088	-.197*
Human Capital	-.144	-.370***	.453***	-.153	.135
<i>Demographic</i>					
Population	.122	-.299***	.118	-.164	.266***
Population Density	.381***	-.588***	.000	-.155	-.137
Foreign Born	.520***	-.340***	.013	-.209**	.257**
Black Population	-.386***	.387***	.134	-.196**	.299***
White Population	.009	-.209**	-.218**	.347***	-.439***
Hispanic Population	.618***	-.023	-.033	.004	.083
Single Households	-.617***	-.193***	.111	.224**	.122
Married Share	.304***	.123	-.097	.015	-.348***
Divorce Share	.183*	.271***	-.030	.275***	.044
Married Age 15-19 (M)	.399***	.223***	.057	.094	-.042
Married Age 15-19 (F)	.542***	.401***	-.010	-.039	-.051
<i>Political</i>					
Obama Votes	-.043	-.535***	.081	-.048	.391***
Romney Votes	.032	.550***	-.103	.036	-.387***
<i>Social Psychological</i>					
Well Being	.231**	-.090	.361***	-.175*	.094
Openness	.246**	-.162	.325***	-.135	.251**
Religiosity	.063	.799***	.016	-.061	-.255**
Bohemians	-.082	-.388***	.323***	-.050	.149
Gay Index	.214**	-.277***	.434***	-.203*	.458***
Extraversion	.008	.140	-.142	-.020	.043
Agreeableness	-.027	.483***	.054	-.247**	.130
Conscientiousness	-.070	.482***	.052	-.029	.078
Neuroticism	-.248**	-.093	-.077	.332***	-.139

Note. M = mellow, U = unpretentious, S = sophisticated, I = intense, C = contemporary.

* $p < .05$, ** $p < .01$, *** $p < .001$, N = 96

Figure Captions

Figure 1. State-Level Preferences for Mellow Music

Figure 2. State-Level Preferences for Unpretentious Music

Figure 3. State-Level Preferences for Sophisticated Music

Figure 4. State-Level Preferences for Intense Music

Figure 5. State-Level Preferences for Contemporary Music

Figure 1.

Figure 2.

Figure 3.

Figure 4.

Figure 5.

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