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# The Geography of Music Preferences

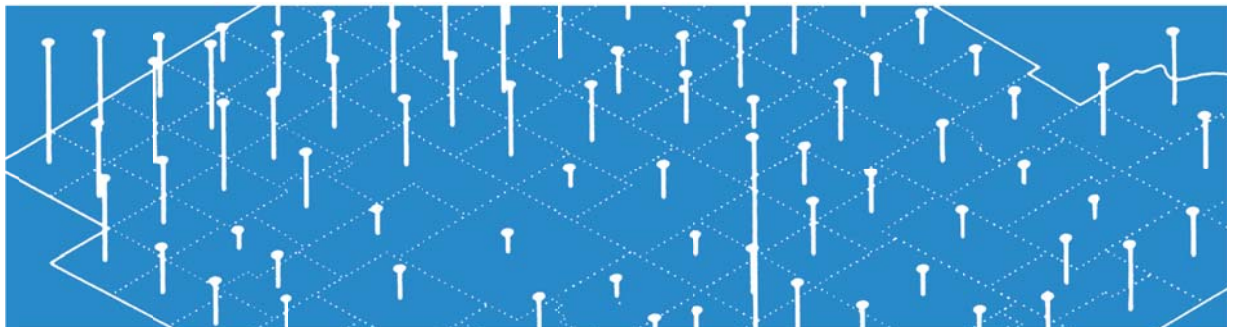
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Prepared by:

Peter J. Rentfrow, University of Cambridge  
Charlotta Mellander, Jönköping International Business School  
Richard Florida, University of Toronto  
Brian Hrats, University of Toronto  
Jeff Potter, Atof Inc.

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## **Abstract**

Music spans many styles and genres, and previous research has identified five major categories of music preferences: mellow, unpretentious, sophisticated, intense, and contemporary. Our research examines the geographic variation in these five categories of music preferences and the socio-economic factors that shape them. Our research uses factor analysis to plot music preferences across the fifty U.S. states, and employs bivariate correlation analyses to relate the music-preference factor scores with socio-economic structures, personality variables and other factors across states. We find significant geographic variation across certain types of music preferences. We also find that the geographic structure of music preference is related to key socioeconomic variables such as income, education, and occupation, as well as political preference expressed as voting patterns.

**JEL:** O3 R1 R2 J24

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

## **The Geography of Music Preferences**

Music plays an important role in the lives of many people. The typical American, for example, listens to roughly 18 hours of music in an average week (Motion Picture Association of America, 2007). Assuming the average person sleeps eight hours a night, people spend more than 15% of their waking hours with music playing. And as new mobile technologies make it even easier to bring music wherever we go, people are spending more money on music. In 2010 the global digital music industry was worth approximately US\$4.7 billion, an increase of more than 1000 percent from 2004 (International Federation of the Phonographic Industry, 2011). There are myriad musical styles and genres from classical to jazz and blues, R&B and hip-hop, country and religious, rock and pop. Musical tastes and preferences vary widely among types of people and geographic areas. Given how important music is to people's lives, and that so many influential musical styles have originated in the U.S., it is surprising that we know so little about the geography of music preferences.

Theory and research in the social and behavioral sciences shows that the cultural fabric of America is multifaceted and that developing a thorough understanding of regional differences requires multiple perspectives. To broaden our understanding and offer another perspective on America's cultural landscape, the present research examines these cultural, social, economic, and psychological divisions through the lens of musical preferences. Research on the psychology of music indicates that preferences are influenced by social and psychological variables. Our research takes shape around a number of basic questions. What is the geographic distribution of music preferences in the U.S.? Are certain musical styles more popular in some regions than in others? Is the music popular in an area related to important social, political, or economic indicators?

Our central hypothesis is that geographic variations in music preferences will be a good proxy for overall socio-economic structures, such as income, education, occupation,

politics, well-being, religion and personal relations. Based on a large nationwide survey that assessed individual differences in music preferences, we examined the factor structure of state-aggregate music preferences and mapped statewide differences in preferences for these music factors. Furthermore, we correlated state-level music preferences with socio-economic structure variables to examine relations between different sorts of regional preference structures and the overall socio-economic performance of the region. Ultimately, our results show that music preferences cluster in space and reflect broader socio-economic structures such as income, education, occupation, and political views.

### *Regional Differences in Consumer Preferences*

The notion of persistent geographic variation in people's cultural, social and political attitudes and preference is not new. 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 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.

More recently, 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.

Taken together, the available research strongly suggests that there are robust and 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. Are there regional differences in music preferences? Do geographical differences in music preferences reflect meaningful information about the economic, political, social, or psychological characteristics of regions?

### *Music Preferences as Representations of Regional Cultures*

Results from numerous investigations indicate that 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 (e.g., Boer, Fischer, Strack, Bond, Lo, & Lam, 2011; Levitin, 2006; North, Hargreaves, & Hargreaves, 2004; Rentfrow & 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 (e.g., Delsing, ter Bogt, Engels, & Meeus, 2008; George, Stickle, Rachid, & Wopnford, 2007; Rentfrow & 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. And there are good reasons to expect music preferences to vary across regions.

*Social factors influence music preferences.* Most 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 & Goldthorpe, 2007; Katz-Gerro, Raz, & Yaish, 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. 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 links between music preferences and personality, a number of studies have begun to investigate the structure of individual-differences in music preferences (e.g., Colley, 2008; Delsing, ter Bogt, Engels, & Meeus, 2008; Dunn, de Ruyter, & Bouwhuis, in press; Rentfrow & 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, Goldberg, & Levitin, 2011). 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.

Drawing from studies on the structure of music preferences, researchers have 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 & 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 & Gosling, 2003; 2006; McNamara & 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 sociology and psychology indicates that music has strong social and psychological bases. 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 for the dimensions appear to reflect the social and psychological characteristics of music listeners. At a macro level, the music that is popular in regions should therefore reflect how people in the area experience and engage with the world around them. Are people who prefer a certain type of music more likely to live in a state with a certain level of income, job or education? To what extent do music preferences relate to state-level openness or tolerance? And are states that prefer certain styles of music more likely to feel stressed or happy?



### *Aims of the Current Research*

The primary aim of this research is to add to our understanding of the cultural divisions in America. To that end, we explored regional variation in music preferences and their links to key social, economic, political, and psychological variables. Based on previous research, we expected 1) to identify robust and interpretable dimensions of music preferences, 2) that the music-preference dimensions would be regionally clustered across the US, and 3) that the preference dimensions would be uniquely related to various social indicators. To evaluate our expectations we examined the factor structure of state-level music preferences using data from a large-scale Internet survey involving approximately 175,000 U.S. residents. We next mapped and ranked the states according to their music preferences and cluster analyzed state-level preference scores to search for similarities and differences in music preferences between and across states. Finally, we correlated the music preference factor scores with indicators of economic performance, political orientation, human capital, well-being, religiosity, openness, race, and rates of marriage and divorce.

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 2010.

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 state 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 the 50 states or Washington D.C. were included.

*Demographics.* Implementation of the aforementioned criteria resulted in complete data for 174,553 respondents (54% female). The median age of respondents was 24 years ( $SD = 10.26$  years). Of those who indicated, 5,189 respondents (3%) were African American; 14,865 (9%) were Asian; 7,639 (4%) were Latino; 132,898 (78%) were White; and 10,609 (6%) indicated “Other.” Of those who provided information about their social class, 23,360 (23%) were working class; 21,047 (20%) were lower-middle class; 39,644 (39%) were middle class; 16,837 (16%) were upper-middle class; and 2,218 (2%) were upper class.

*Representativeness.* To ensure that each state was fairly represented, we correlated the percentage of total respondents from each state in our sample with the percentage of the total

U.S. population for each state using data from the U.S. Census Bureau (2000). The percentage of respondents from each state in our sample was directly proportional to the 2000 U.S. Census Bureau's estimates of the population of each state,  $r = .98$ .

Past research on Internet-based surveys suggests that minority groups are vastly underrepresented on the Internet (e.g., 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 state. For example, we correlated the percentage of Asian respondents from each state with the U.S. Census Bureau's estimate of the percentage of Asians in each state. The correlations for African Americans, Asians, Latinos, Whites, and "Other" ethnicities, respectively, were .94, .97, .94, .86, 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 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).

#### *Primary Data*

*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 22-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, oldies, 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 & Gosling, 2003).

### *Secondary Data*

One of our main interests concerned the relations between state-level music preferences and social indicators. To examine such relations, we gathered secondary data for demographic, economic, political, occupational, and social psychological indicators.

*Demographic indicators.* The primary demographic indicators we focused on were race and marital status. In our analyses, race is the white, black and Hispanic share of the population. All variables are from the 2006-2008 ACS data from the U.S. Census. The proportion of immigrants in each state represents the foreign-born share of the population and is from the 2006 U.S. Census. Marital status was assessed using a number of variables to proxy for personal relations, including median marriage age for men and women, median duration of marriages, and the share of the population that is divorced. These variables were based on the 2006-2008 Census data.

*Economic and political indicators.* 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 state in a year divided by state population. The data used were for 2006 and taken from the U.S. Census. We also examined wage or salary income, including net self-employment income from the 2006 U.S. Census. And hourly earnings and hours worked as indicators of the average earning per hour and hours worked per week. Both variables are for 2008 from the Bureau of Labor Statistics.

As state-level indicators of political opinion, we used the state-level share of votes cast in the 2008 U.S. Presidential election for Obama and McCain. The data were obtained from the Office of the Clerk, U.S House of Representatives.

*Occupational indicators.* Our occupational indicators are based on the 2006 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. Service worker occupations are assumed to score low on autonomy but relatively high on complexity. Health care support, food preparation and food-service-related occupations, building and grounds cleaning and maintenance, personal care and service, low-end sales, office and administrative support, community and social services, and protective services are all included in this group. 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 state labor force. We also examined human capital, measured as the share of the labor force with a university degree of three years or more, taken from the 2006 U.S. Census.

*Social-psychological indicators.* We used several indicators to assess the social-psychological characteristics of states. Psychological well-being was taken from the Gallup Organization's Well-Being Index for year 2009. The index takes into account; emotional health, work quality, basic access, healthy behavior, physical health and life evaluation. Psychological stress measures the share of the state population that reported feeling "a lot of stress" in their daily life to the 2009 Gallup Well-Being survey.

Personality was conceptualized in terms of the Big Five (John, Nauman, & Soto, 2008; McCrae & Costa, 2008), which comprises five broad dimensions of personality:

Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. State-level scores for each big-five domain were available from Rentfrow et al. (2008).

Religiosity measures the importance of religion in daily life. The question was included in the 2008 Gallup Daily Poll.

We also included 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 2006 U.S. Census. The bohemian index is a location quotient for arts and design related occupations and is also based on data from the 2006 U.S. Census.

### *Methods*

To address our key research questions, we conducted a factor analysis of state-level music preferences. We then compared the state-level factor structure to the structure obtained using individual-level data. Next, we used the state-level factor scores to map and rank music preferences for each of the states. We also performed hierarchical cluster analyses of the factor scores by state to identify similarities and differences in music preferences across states. Finally, we conducted bivariate correlation analyses to relate the music-preference factor scores with socio-economic structures across states. 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 socio-economic structures.

### *Findings*

#### *State-Level Music-Preference Dimensions*

Our first research question concerned the dimensions of music preferences at the state level of analysis. Previous research on music-preference dimensions 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 state-level mean scores for each music genre. Table 1 provides the descriptive statistics for the state-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 oldies and pop. The least liked music genres were religious, gospel, opera, and blue grass. Religious, country and international music genres had the largest standard deviations across regions, while rock, alternative, oldies and new age preferences varied the least.

To identify state-level music-preference factors, we first conducted a principal components analysis with varimax rotation. This analysis revealed 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). To formally test the extent to which the state-level factor structure captured the individual-level MUSIC factors, we performed a principal components analysis with Procrustes rotation. 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 Haven and ten Berge’s (1977) threshold of .85 (factor congruence coefficients = .90, .89, .92, .89, and .86, M, U, S, I, and C, respectively; total congruence = .89).

**[Table 2 about here]**

The state-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 were dance/electronic and new age. As can be seen in the second data column, country, religions, gospel, pop, and oldies music had their primary loadings on the unpretentious factor. The genres with the largest loadings on the sophisticated factor were blues, folk, jazz, classical, bluegrass, opera, and world. The rock, punk, alternative, and heavy metal genres had their highest loadings on the intense music-preference factor. The genres with the highest loadings on the contemporary music-preference factor were 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 (e.g., Delsing et al., 2008; Rentfrow & Gosling, 2003; Rentfrow et al., 2011).

#### *Mapping the Geography of Music Preferences*

Given results from the state-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 state-level factor scores to represent each state's degree of preference for each of the MUSIC factors. Maps for each music-preference dimension were produced from these factor scores, and all correlations were

*Mellow.* Figure 1 maps mellow music preferences by state. As can be seen in this figure, there appears to be an east-west divide in preferences for the mellow music-preferences factor. Preferences for mellow music are generally more concentrated in the mountain states and neighboring areas, but preferences for this factor appear to gradually weaken in the central to eastern regions. Indeed, Utah, Idaho, Hawaii, Oregon, and Florida are among the highest-ranking states on this factor, while West Virginia, Wyoming, Kentucky, South Dakota, and Mississippi are among the lowest-ranking states.

**[Figure 1 about here]**



*Unpretentious.* Figure 2 charts unpretentious music preferences by state. It shows an apparent north-south divide in preferences for unpretentious music. Specifically, preferences for this music factor were strongest in the Southern and Gulf-Coast states and weakest in the West Coast, Mid-Atlantic, and New England regions. Indeed, states with the highest ranking preferences for unpretentious music included Mississippi, Alabama, Texas, Oklahoma, and Arkansas, and the states with the lowest ranking preferences included Nevada, New Jersey, Connecticut, Massachusetts, and Rhode Island.

**[Figure 2 about here]**

*Sophisticated.* The map of statewide preferences for Sophisticated music is plotted in Figure 3. The map of sophisticated music preferences reveals an east coast/west coast divide, with preferences for this music dimension being strongest on the West Coast and the East Coast, especially the Mid-Atlantic and New England Regions, and lowest in the Great Plains and Midwest. The District of Columbia tops the list followed by Vermont, Washington, Massachusetts, and California, whereas West Virginia, South Dakota, Wyoming, Kentucky and Iowa show the lowest preference for sophisticated music.

**[Figure 3 about here]**

*Intense.* The map of statewide preferences for intense music is shown in Figure 4. The geographical pattern of preferences for this dimension of music appears to be highest in the Eastern Mountain and Great Plain regions, and comparatively lower in states along the East Coast. Indeed, New Mexico, Montana, Nevada, Wyoming, Nebraska, and Missouri were

among the states with strong preferences for Intense music, whereas Hawaii, Florida, Mississippi, Louisiana, Mississippi, and Delaware were among the states with weak preferences for this music dimension.

**[Figure 4 about here]**

*Contemporary.* The map of statewide preferences for contemporary music is shown in Figure 5. The map shows a comparatively high degree of preferences for Contemporary music in Iowa, and regions in the West, South, and Southeast, and weaker preferences in the Midwest. The strongest preferences for this style of music were found in Iowa, Hawaii, District of Columbia, South Carolina and California, whereas the lowest-ranking preferences were in Vermont, Idaho, Alaska, Utah, and Wyoming.

**[Figure 5 about here]**

#### *State-Level Correlates of Music Preferences*

The maps of the MUSIC preference dimensions revealed a number of interesting regional differences, but how meaningful are those differences? Are statewide music-preference differences associated with important social, economic, political, or psychological indicators? To develop a better understanding these regional differences, we examined the links between each of the state-level music-preference factors and a variety of social indicators. We chose to run 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 analyses are displayed in Table 3.

**[Table 3 about here]**

*Mellow.* As can be seen in the first data column of Table 3, state-level preferences for the mellow preference dimension were uniquely related to the social indicators. Preferences for mellow music were related to many of the demographic indicators and a few of the social-psychological indicators. Specifically, states with comparatively strong preferences for mellow music had large shares of the Hispanic population ( $r = .42$ ) and low shares of the Black and African American population ( $-.30$ ). Moreover, in states where preferences for mellow music is strong, men and women get married younger and have shorter marriages than in states where preferences for mellow music is comparatively weak ( $r_s = -.32, -.46, -.43$ , men's age at first marriage, women's age at first marriage, and marriage length, respectively). There was a negative correlation between preferences for this factor and income and hourly earnings ( $r_s = -.26, -.25$ , respectively). The correlations between this factor and the social-psychological indicators revealed positive links with well-being and conscientiousness and a negative correlation with neuroticism ( $r_s = .43, .32$ , and  $-.58$ , respectively), suggesting that people in states where mellow music is liked are content, self-disciplined, and relaxed.

*Unpretentious.* As can be seen in the second data column, state-level preferences for the unpretentious music-preference factor were associated with several of the social indicators. Specifically, preferences for this factor appear to be strong in states with large Black and African American populations and small immigrant populations ( $r_s = .28, -.48$ , respectively). As in states with strong preferences for mellow music, in states with preferences for unpretentious music men and women marry at younger ages ( $r_s = -.67, -.52$ , respectively), marriages are shorter ( $-.26$ ) and the share of divorced is higher ( $.26$ ) than in

states with weaker preferences for this factor. Furthermore, the value of economic output as well as income appear weaker in states with preferences for unpretentious music ( $r_s = -.55, -.64, -.43$ , GRP per capita, income, and hourly earnings, respectively), yet people in these states work more hours (.41) than do people in states with weak preferences for unpretentious music. The analyses also revealed a positive correlation between preferences for unpretentious music and votes for John McCain and a negative correlation with votes for Barack Obama ( $r_s = .58, -.57$ , respectively). Analyses of the occupational indicators indicated that states with preferences for this music factor had comparatively large shares of working class ( $r = .62$ ) and smaller shares of creative (-.37) and service class (-.49), and less human capital (-.41) than states with weak preferences for unpretentious music. In terms of the social psychological indicators, it appears that residents of states with preferences for unpretentious music are high in agreeableness, conscientiousness, and religiosity ( $r_s = .35, .43, .67$ , respectively). Preferences for this factor were also negatively related to the share of bohemians and the gay index ( $r_s = -.36, -.26$ , respectively).

*Sophisticated.* The correlations between state-level preferences for sophisticated music and the social indicators are listed in the third data column in Table 3. The results showed that states where preferences for sophisticated music are strong have comparatively high levels of immigrants and large Hispanic populations ( $r_s = .51, .39$ , respectively). Preferences for this factor were positively related to age at first marriage for men and women ( $r_s = .41, .40$ , respectively) and negatively related to length of marriage (-.31). Preferences for sophisticated music were stronger in states where residents earned more money, as evidenced by positive correlations with income and hourly earnings ( $r_s = .29, .62$ , respectively), compared to states with weak preferences for this factor. Preferences for sophisticated music were also positively related to votes for Barack Obama in the 2008 U.S. Presidential Election ( $r = .53$ ). States with sophisticated music preferences displayed large shares of creative class workers and human

capital ( $r_s = .57, .55$ ) and low shares of working class residents ( $-.55$ ). In terms of social-psychological indicators, residents of states with preferences for this factor are comparatively high in well-being ( $r = .42$ ) and psychological and social openness (.61, .50, .76, for openness, bohemians, and gay index, respectively). Religion does not appear to be important in states with preferences for sophisticated music ( $r = -.43$ ).

*Intense.* State-level preferences for intense music were related only to a handful of the indicators. Overall, it appears that preferences for this music factor are strongest in states with large proportions of White residents and small proportions of Blacks and African Americans ( $r_s = .53, -.41$ ). It also appears that state-level preferences for intense music are positively related to share of divorced residents ( $r = .29$ ).

*Contemporary.* The correlations between state-level contemporary music preferences and the social indicators are shown in the last data column of Table 3. Preferences for this music factor were negatively linked to the proportion of white residents and the share of divorced residents ( $r_s = -.45, -.33$ ). Examination of the social-psychological indicators revealed a negative relationship with stress ( $r = -.37$ ) and a positive relationship with religiosity (.26).

### *Discussion and Conclusions*

The primary aim of the present research was to examine regional differences in musical preferences. Results from our analyses suggest that state-level music preferences can be conceptualized in terms of five basic dimensions. These dimensions were nearly identical to those observed in individual-level research. Our maps of statewide music preferences revealed a number of fairly clear geographical patterns. Results from our analyses provide insight into the nature and meaning of the statewide differences in music preference.

The mellow music factor was defined primarily by preferences for electronica and new age music, and was preferred most in the Mountain and West Coast states. The genres on

the factor comprise subgenres with relaxing, easygoing, and atmospheric music, and are associated with environmentalism and spirituality. These qualities are consistent with the patterns of relationships between preferences for this music and the social psychological indicators, which suggested that residents in this region are generally satisfied with their lives, relaxed, and conscientious. Considering that the mountain region is also renowned for its beautiful landscapes and natural parks, and home to several environmental groups and new-age festivals (e.g., Burning Man), it would seem that mellow music represents the lifestyles, values, and landscape of this region.

The unpretentious music-preference factor was defined primarily by country and roots music, and states in the Deep South and Gulf Coast displayed the strongest preferences for this music. In unpretentious music regions, there is a large proportion of Black and African American residents, economic productivity and incomes are low, few people have college degrees, and people are friendly, self-disciplined, religious, and socially and politically conservative. 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 (Carney 2009). In addition to the geographical origins, this musical style is also associated with the Bible belt, an area of the south eastern United States spanning from Texas to South Carolina and characterized by strong evangelical Christian sentiment (Garcia and Kruger 2010). Taken together, then, 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 psychological, political, and social views of residents in that region.

The styles of music that defined the sophisticated preference factor included classical, opera, jazz, and folk. An East-West divide emerged for this music dimension, such that areas in the Northeast and on the West Coast showed comparatively strong preferences for

sophisticated music. Furthermore, states where preferences for this music factor were strong appear to be culturally diverse, wealthy, well educated, and residents are content with their lives, socially tolerant, open-minded, and politically liberal. 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.

Untangling the geography of intense music preferences is something of a puzzle, but some historical cultural context may help. The key genres in this this preference dimension are heavy metal, punk, and rock, and preferences were highest in the Western Mountain states and parts of the Midwest. States where intense music is popular have predominantly white and divorced residents. 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 (Gross 1990; Arnett 1993; Reddick & Beresin 2002; Krenske & Jim McKay 2010). The comparatively large proportions of white middle-class residents in the eastern mountain and Great Plains regions provide empirical support for this point.

The contemporary music-preference factor was defined by preferences for rap, soul, funk and reggae, and was popular in parts of the Southwestern and Southeastern states. These styles of music 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. In addition, residents of states where this music is popular appear to be religious and

low in psychological stress. Thus, it would seem that preferences for this music factor reflect, at least to some degree, the racial and ethnic makeup of a region.

Taken together, the results from this project suggest that the geographical origins of particular musical styles, the themes common to the music, as well as the lifestyles and values of residents contribute to regional differences in music preferences. This is perhaps most clear for unpretentious music: the geographic origins of country and western music are based in the Southern U.S.; the general themes common to this broad musical style emphasize individualism, family, loss, and religion; and people who live in unpretentious music regions have strong work ethics, traditional values, economic hardships, and are predominantly Christian. Thus, state-level music preferences seem to be manifestations of the social, economic, political, and psychological characteristics of places.

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 inline with those reported in previous research (e.g., 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 state-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, Vazire, Srivastava, & John, 2004; Skitka & Sargis, 2006). Furthermore, similar results are typically obtained across Internet and non-Internet samples, including studies of music preferences (e.g., Rentfrow et al., 2011; Rentfrow, Goldberg, & Zilca, 2011; Rentfrow & 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, Kiesler, Weisband, & Drasgow, 1999; Skitka & 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.

### *Conclusion*

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 social, economic, political, occupational, and 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 values and lifestyles of the region.

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Table 1. Descriptive statistics for music genres

Genre	N	Minimum	Maximum	Mean	Std. Deviation
Alternative	51	4.88	5.34	5.14	.095
Blue Grass	51	2.75	3.41	3.11	.152
Blues	51	3.74	4.37	3.97	.121
Classical	51	3.95	4.62	4.32	.147
Country	51	2.92	3.78	3.39	.247
Dance Electronica	51	3.52	4.21	3.94	.156
Folk	51	3.13	3.81	3.38	.147
Funk	51	3.20	3.94	3.60	.116
Gospel	51	2.54	3.25	2.82	.164
Heavy Metal	51	3.49	4.41	3.98	.175
International	51	3.23	4.20	3.58	.207
Jazz	51	3.63	4.54	4.04	.147
New Age	51	3.25	3.90	3.49	.114
Oldies	51	4.35	4.77	4.55	.102
Opera	51	2.47	3.24	2.82	.153
Pop	51	4.11	4.83	4.34	.123
Punk	51	3.90	4.51	4.29	.124
Rap Hip Hop	51	3.32	4.14	3.62	.161
Reggae	51	3.33	4.16	3.72	.182
Religious	51	2.22	3.43	2.74	.296
Rock	51	5.67	6.05	5.91	.077
Soul RnB	51	3.58	4.52	3.91	.150
Valid N (listwise)	51	3.95	4.62	4.32	.147

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/Dance	<b>.77</b>	-.16	.31	-.01	.34
New Age	<b>.74</b>	.34	-.22	.20	-.30
Country	-.17	<b>.90</b>	-.23	-.09	-.22
Religious	-.06	<b>.85</b>	-.13	-.40	-.13
Gospel	-.11	<b>.70</b>	.37	-.51	.09
Pop	.31	<b>.67</b>	-.19	-.15	.51
Oldies	.28	<b>.55</b>	.54	.26	.33
Blues	-.02	.16	<b>.90</b>	-.16	.23
Folk	.10	-.16	<b>.89</b>	.14	-.05
Jazz	.29	.00	<b>.82</b>	-.09	.38
Classical	.54	.15	<b>.77</b>	-.03	-.01
Bluegrass	-.02	.50	<b>.73</b>	-.02	-.23
Opera	.62	.10	<b>.67</b>	-.06	.12
World/international	.54	-.28	<b>.67</b>	.09	.26
Rock	-.38	-.19	.10	<b>.74</b>	-.38
Punk	.13	-.37	-.30	<b>.78</b>	.14
Alternative	.48	-.22	.35	<b>.60</b>	.22
Heavy Metal	-.29	.07	-.47	<b>.41</b>	-.50
Rap/hip-hop	-.06	.14	-.24	-.23	<b>.88</b>
Soul/R&B	.08	.20	.34	-.38	<b>.74</b>
Funk	.24	-.16	.63	.02	<b>.60</b>
Reggae	.44	-.36	.47	.13	<b>.52</b>

Note. M = mellow, U = unpretentious, S = sophisticated, I = intense, C = contemporary. Primary positively signed factor loadings are highlighted in bold.  $N = 51$



Table 3. State-level correlations between music preferences and the social indicators

Indicator	Music-Preference Factors				
	M	U	S	I	C
<i>Demographic</i>					
Immigrants	.168	-.476***	.506***	-.104	.206
Black Population	-.303**	.275*	-.092	-.408***	.174
White Population	.073	-.091	-.098	.527***	-.454***
Hispanic Population	.418***	-.177	.390***	.219	.086
Marriage age (M)	-.315**	-.665***	.408***	.075	.066
Marriage age (W)	-.463***	-.519***	.402***	-.058	.184
Marriage length	-.433***	-.256*	-.313**	.214	.059
Divorce share	.089	.259*	.084	.288**	-.330**
<i>Economic &amp; Political</i>					
GRP per Capita	-.125	-.549***	.155	-.154	-.049
Income	-.256*	-.637***	.293**	-.035	-.050
Hours Worked	-.006	.413***	-.034	.065	-.018
Hourly Earnings	-.249*	-.432***	.622***	-.114	.064
Obama votes	-.217	-.573***	.526***	-.051	.208
McCain votes	.185	.583***	-.542***	.051	-.174
<i>Occupational</i>					
Creative Class	-.144	-.372***	.572***	-.047	-.193
Service Class	.142	-.487***	.110	.067	.216
Working Class	.001	.618***	-.549***	-.002	.015
Human Capital	.054	-.411***	.545***	-.054	-.056
<i>Social Psychological</i>					
Well Being 2009	.431***	-.184	.418***	-.112	.062
Stress 2009	-.081	-.166	.220	.183	-.369***
Extraversion	.099	.078	-.374***	.020	.187
Agreeableness	.064	.345***	-.077	-.068	.196
Conscientiousness	.319***	.428***	-.026	-.220	.113
Neuroticism	-.580***	-.027	-.172	.041	.106
Openness	.002	-.200	.609***	.103	-.142
Religiosity	.007	.670***	-.434***	-.117	.256*
Bohemians	.203	-.362***	.502***	.093	.096
Gay Index	-.041	-.260*	.756***	-.138	-.122

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

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

N = 51

*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.

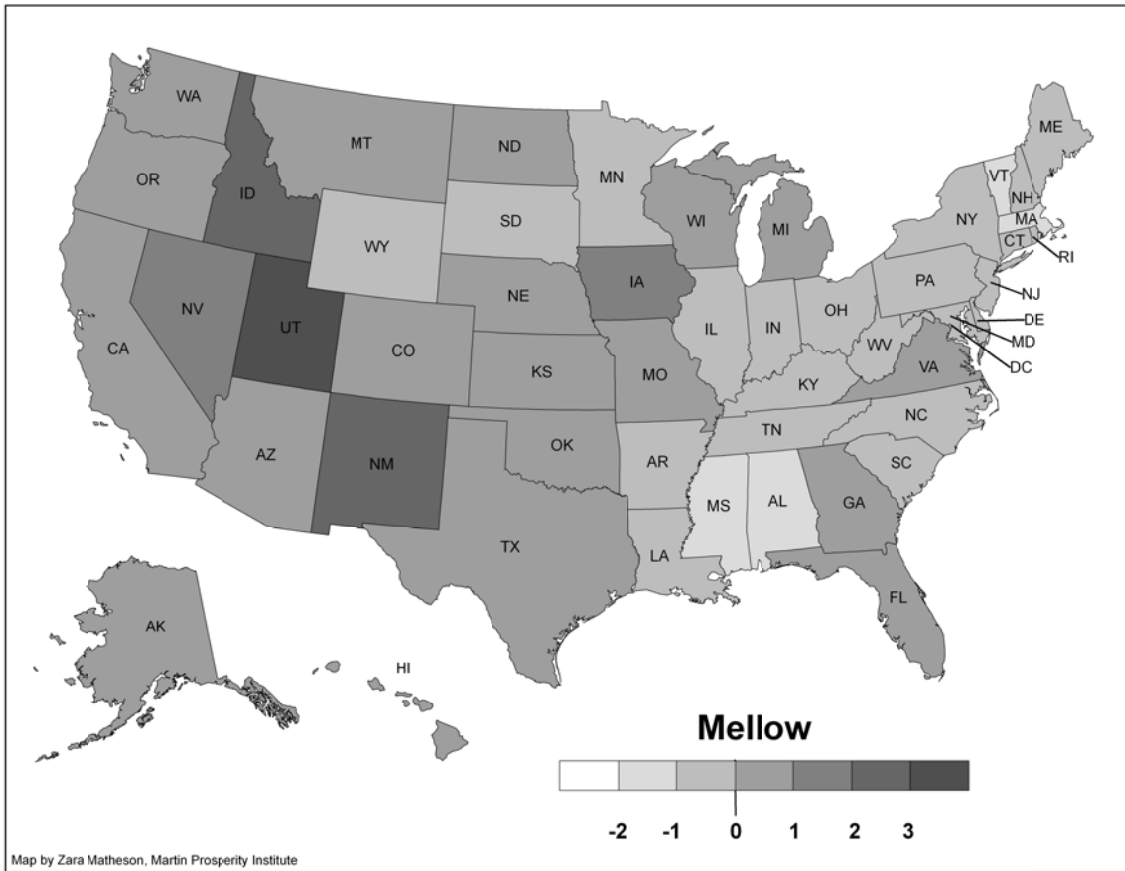


Figure 2.

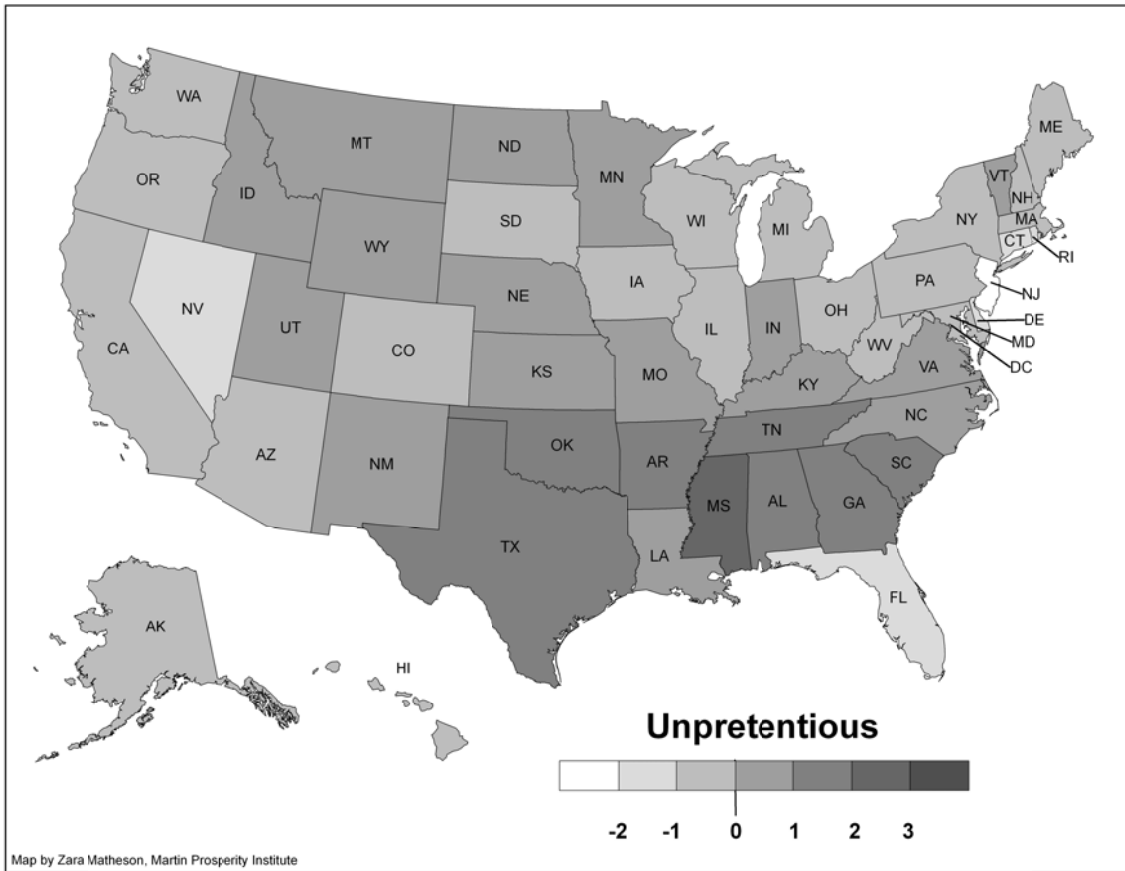


Figure 3.

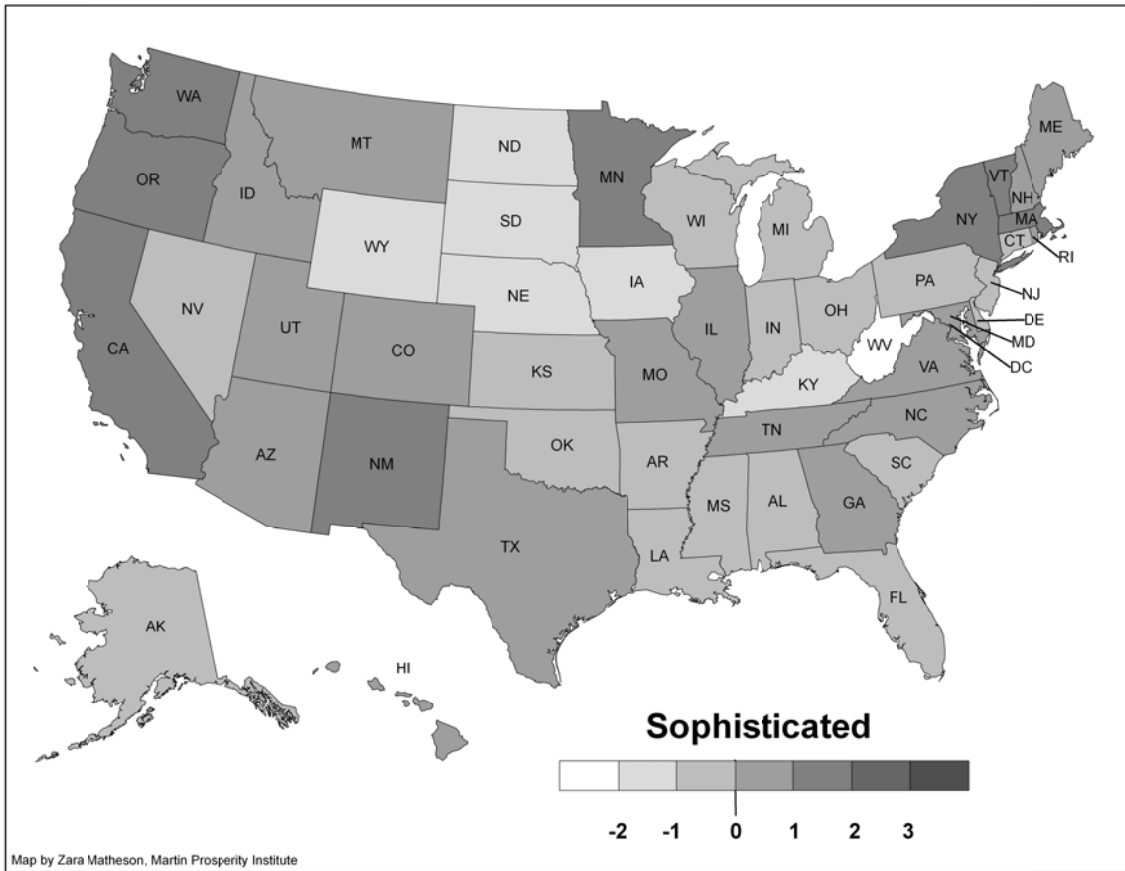


Figure 4.

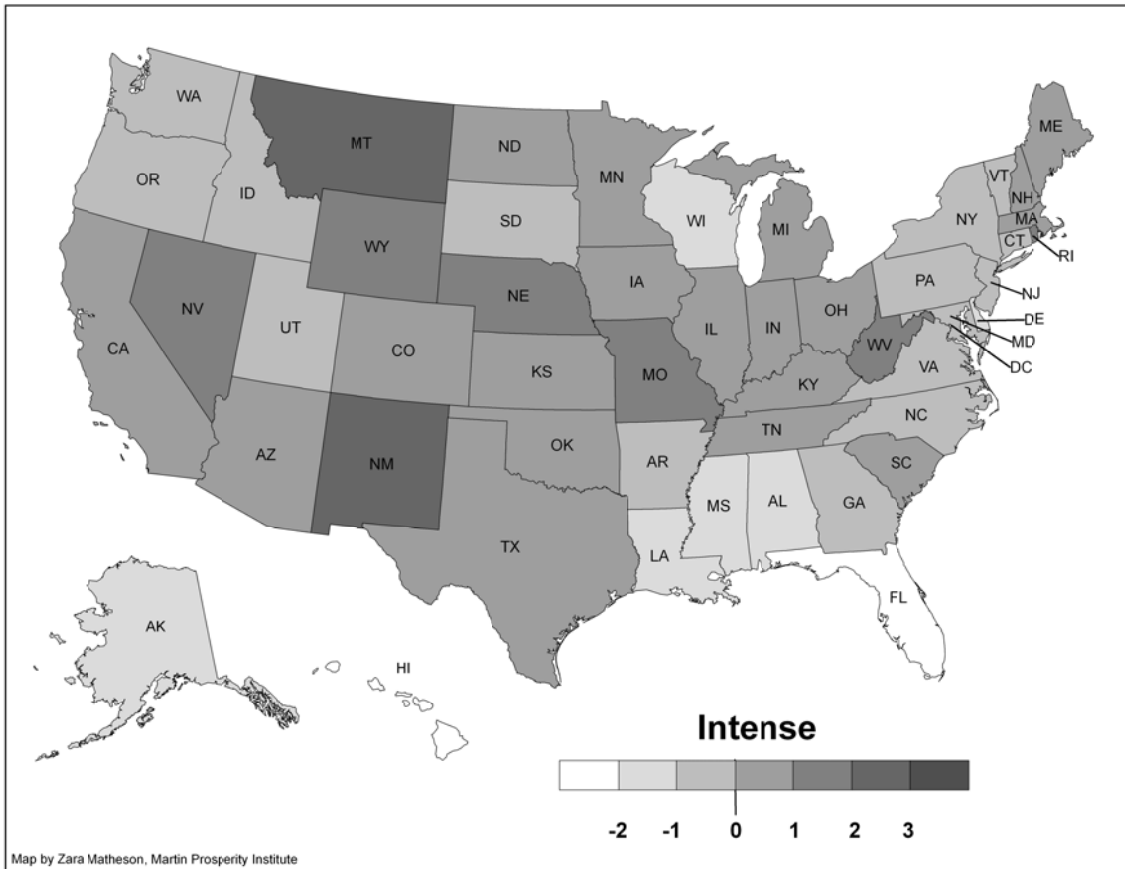
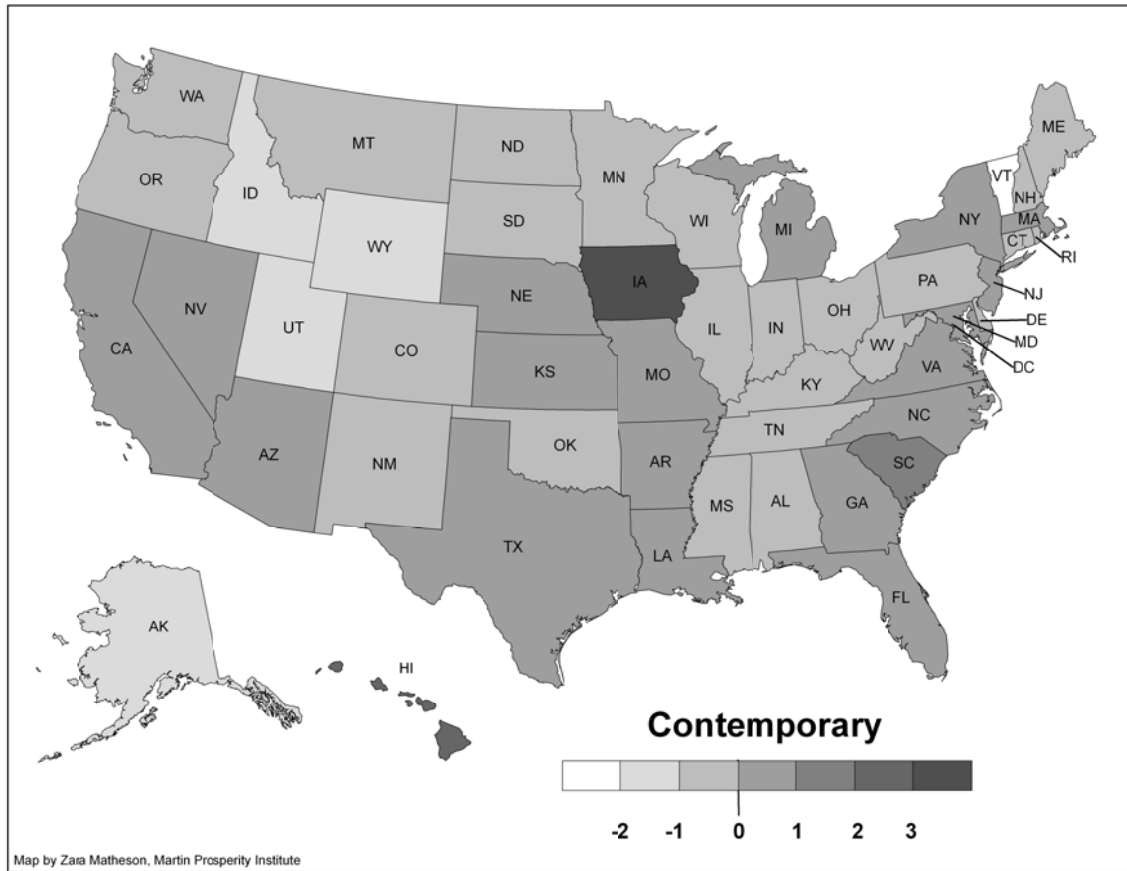


Figure 5.



## Author Bio

Rentfrow is a University Senior Lecturer in the Faculty of Politics, Psychology, Sociology, and International Studies at the University of Cambridge, [pjr39@cam.ac.uk](mailto:pjr39@cam.ac.uk).

Mellander is Research Director of the Prosperity Institute of Scandinavia, Jönköping International Business School, [charlotta.mellander@ihh.hj.se](mailto:charlotta.mellander@ihh.hj.se).

Florida is Director of the Martin Prosperity Institute in the Rotman School of Management, University of Toronto, [florida@rotman.utoronto.ca](mailto:florida@rotman.utoronto.ca).

Hracs is a Post-Doctoral Fellow at the Martin Prosperity Institute in the Rotman School of Management, University of Toronto, [brian.hracs@rotman.utoronto.ca](mailto:brian.hracs@rotman.utoronto.ca).

Potter is web developer and author at Atof Inc. in Cambridge Massachusetts, [webmister@outofservice.com](mailto:webmister@outofservice.com).

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