The Value of Openness*

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Abstract

We provide a culture-based explanation for the role of geography in value creation by firms. As cities differ in their openness toward adopting new innovative products, local firms consequently differ in their ability to capitalize on their growth opportunities. Our proxy for openness is constructed from the likelihood that new music is first played by local radio stations, and is validated by psychological evidence on an associated personality trait. Openness exhibits persistent cross-sectional variation across U.S. cities that can be traced back more than a century ago. During our 2000 to 2019 sample period, this variation explains city-level variation in the number of new ventures and new product introductions. Openness is also positively (negatively) associated with the industry-adjusted proportion of growth (value) firms located in a city, with its impact on Tobin's q being especially strong for young firms. Our results are robust to controls for industry, demographics (such as education, income, and age), R&D expenditures, and weather.

Keywords: Value Creation, Culture, Openness, First-Mover Advantage

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1 Introduction

Openness is an important determinant of innovation (Obschonka, Schmitt-Rodermund, Silbereisen, Gosling, and Potter (2013)). However, despite being one of the most innovative economies in the world (see, for example, INSEAD's Global Innovation Index), the U.S. ranks relatively low on average openness, that is average interest in new ideas and new experiences. Nevertheless, variation across U.S. cities offers a potential resolution to the paradox between high innovation versus low average openness.

Indeed, while cities have long been recognized as important engines for innovation (Florida, Adler, and Mellander (2017)), U.S. cities differ in their economic vibrancy (Dougal, Parsons, and Titman (2015)). For example, the number of VC-funded start-ups is concentrated in a relatively small number of cities, and growth firms are far from uniformly distributed across U.S. cities. Moreover, within the same industry, investors assess the growth opportunities of firms differently across cities (Dougal, Parsons, and Titman (2021)).

We investigate whether openness can explain these city-level differences. Thus, we contribute to a large literature on the intersection between finance and urban economics. For example, Duranton and Puga (2001) hypothesize that cities with diverse industries offer innovative new products, while specialized cities offer lower production costs. Our culture-based explanation hypothesizes that city-level variation in openness determines differences in entrepreneurship and growth opportunities. In addition to possibly having a more creative labor force, cities with greater openness provide local firms the opportunity to experiment with new products, and thus benefit from valuable first-mover advantages.

While openness is one of the Big-Five personality traits, openness in our context reflects the local cultural norms of a city that have persisted from its past to present population.[1] We measure openness, which encompasses the ability of residents to successfully identify

[1]The Big-Five personality traits (Digman 1990) are openness along with extroversion, agreeableness, conscientiousness, and neuroticism.

growth opportunities and their subsequent willingness to experiment with the creation and adoption of new products, through the adoption of new songs that become successful.

Empirically, we find strong evidence that openness varies considerably across U.S metropolitan statistical areas (MSAs) and that this variation explains variation in the growth opportunities, hence value creation, of local firms. Taken together, we address two important research questions: how to identify variation in openness across MSAs, and how this variation creates differences in value creation across MSAs.

While our proxy for openness combines the personality attributes of the current local population with long-held local cultural norms, it ultimately captures the adoption and eventual success of new music. Specifically, our proxy for openness is constructed from the playlists of English-language radio stations in 44 MSAs with at least three radio stations and five public firms. In particular, for every MSA and for every year between 2000 and 2019, we use radio station playlists to determine the fraction of songs that are new and played by the average radio station in a MSA during the first month of a song's release. That is, our measure of openness captures the likelihood that a song played by a MSA's radio station is a new song that is first played by the station in the month of its release.[2] While radio station programmers determine the playlists of individual stations, according to Rossman (2015), success for a radio station programmer is determined by their ability to understand and cater to the taste of their station's audience. Thus, radio station playlists should reflect local audience preferences, thereby enabling the propensity of radio stations to play new music to proxy for the local population's openness. In contrast to the consumption of other local products, such as new restaurants for example, the supply of new songs is the same across all MSAs. Furthermore, since there is no delivery or performance risks associated with new music, variation in trust across MSAs is also unlikely to affect our openness proxy.

[2]In order to be included in our playlist data set, a song has to be among the station's most played 126 songs in a given year. Thus, radio station playlists are comprised of relatively successful songs that represent the majority of songs played.

Consistent with our prediction, our proxy for openness exhibits substantial variation across MSAs. For example, radio stations in San Francisco and Seattle are on average more than twice as likely as radio stations in Houston and Atlanta to play new music. Consistent with being a persistent local cultural trait, cross-sectional differences in openness across MSAs are persistent. Indeed, birthplace diversity and the use of infrequent first names for new born children around 1900 predict a MSA's openness 100 years later. Furthermore, openness is marginally greater in more populous MSAs with higher per capita incomes. As evidence of its validity, our proxy for openness has a positive MSA-level correspondence with the Big-Five personality trait known as "Openness". Data for this personality trait is based on surveys collected between 2003 and 2009 by the Gosling-Potter Internet Project (Stuetzer, Audretsch, Obschonka, Gosling, Rentfrow, and Potter (2018)) and averaged within MSAs. This positive correspondence validates our proxy for openness based on the adoption of new music.

In our initial set of MSA-level results, we document that MSAs with higher openness have a larger number of new VC-funded ventures as well as a larger proportion of growth firms. While openness captures the willingness of residents to adopt new products and services, the number of potential adopters might also be relevant. Therefore, we control for population and population density along with other demographic characteristics, such as age, income, education, and cultural diversity. Given that earlier research has emphasized city-level industry structure as a potentially important factor for city-level innovation (see, e.g., Jacobs (1969); Glaeser, Kallal, Scheinkman, and Shleifer (1992); Duranton and Puga (2001)), we also account for a MSA's industrial concentration (diversification) as well as corporate R&D. Finally, to account for the possibility that pleasant weather attracts skilled workers to a MSA (Dougal, Parsons, and Titman (2021)), we also include the average number of days per year with pleasant temperatures.

We next test whether firms headquartered in MSAs with greater openness are valued more highly by investors given their higher expectations of growth for these firms. For every MSA

and year, we construct the average industry-adjusted Tobin's q of public firms headquartered within the MSA. Consistent with our main testable hypothesis, we find a significant positive association between openness and Tobin's q. In particular, a one standard deviation increase in openness is associated with a 0.38 standard deviation increase in Tobin's q, suggesting that openness is positively related to the growth opportunities priced by financial markets. This result is robust to including a large set of controls, separately removing the five MSAs with the highest average populations, incomes, and education levels as well as to using alternative measures of openness, including one that accounts for variation in the propensities of different music genres to produce new songs, thereby accounting for variation in the composition of radio station genres across MSAs.

To address concerns about omitted variables and reverse causality, we provide additional evidence. First, we include MSA-level fixed effects in our panel regressions. Even though openness is persistent, we continue to find a significant effect of openness on MSA-level Tobin's q. To address concerns that value creation by local firms influences openness, we instrument openness with birthplace diversity in 1890 and infrequent first names in 1910 (Manson et al., 2019; Ruggles et al., 2019). Our IV estimates again indicate a significantly positive impact of openness on value creation.

In order to better understand the possible mechanisms behind the effect to openness, we regress firm-level Tobin's q on MSA-level openness. The corresponding OLS and IV regressions again reveal a significant positive relationship between openness and the Tobin's q of local firms. We argue that openness affects local firms at least partly through their ability to develop successful new products faster than elsewhere. Consequently, we test whether the valuation of younger firms, which are more likely to introduce new products, is more sensitive to openness. This is indeed what we find since a firm's Tobin's q is significantly related to openness during the first ten years after its IPO, but on average not thereafter.

In our final analysis, we directly examine the link between openness and the introduction of new products. Using firm-level announcements of new products (Mukherjee, Thornquist,

and Zaldokas (2022)), we find that greater openness is associated with more new product introductions by local firms. Consistent with our previous results involving firm age, this association is stronger among young firms.

Since Marshall (1890), economists have highlighted the importance of cities as local clusters of economic activity for innovation. While Marshall (1890), Arrow (1962), and Romer (1990) emphasize the benefits of specialized labor markets and knowledge spillovers within industries due to agglomeration, Jacobs (1969), Glaeser, Kallal, Scheinkman, and Shleifer (1992), and Quigley (1998) suggest that it is rather cross-industry spillover and industrial diversity that foster innovation. Duranton and Puga (2001) explicitly model heterogeneity among cities and propose two types of cities; diversified cities that focus on producing innovative new products, and specialized cities that focus on producing standardized products at a lower cost. We propose openness as another dimension that distinguishes "growth" from "value" MSAs. Unlike the prior literature, openness is not primarily a function of industry composition, but reflects attitudes ingrained in the local culture of residents towards new products, experiences, and ideas.

Other researchers have examined the clustering of highly skilled or creative workers and their impact on local productivity and innovation. Such workers might be drawn to certain MSAs for a number of reasons, including low-income taxes (Atanassov and Liu (2019)), spillover effects from existing high-skilled workers, and a pleasant climate (Moretti and Wilson (2017)), Moretti (2019), Dougal, Parsons, and Titman (2021)). Although creative workers likely exhibit higher levels of openness (McCrae and Terracciano (2005)), the fact that MSA-level openness in the 21st century can be predicted by proxies for openness at the beginning of the 20th century suggests that part of the effect of openness operates through a persistent cultural channel. While a local culture that emphasizes openness may attract skilled workers, we propose that openness also impacts firms through a product demand channel, specifically the demand for new products. Besides higher demand for new products, local investors in MSAs with greater openness may have a higher demand for start-up investments. This

investor demand channel could increase the availability of funding for start-ups as well as their valuations. Nevertheless, culture offers a broad description of a local population, and is consequently closely associated with consumers who outnumber subsets of high-skilled workers or venture capitalists. More importantly, regardless of the exact channel (product demand, labor supply, or investor demand), our results provide support for the importance of cultural differences to economic outcomes (e.g., Guiso, Sapienza, and Zingales (2006)).

By explaining MSA-level variation in Tobin's q documented by Dougal, Parsons, and Titman (2021), we contribute to a literature that explores geographic variation in returns or valuations (e.g., Pirinsky and Wang (2006), Bekaert, Harvey, Lundblad, and Siegel (2011), Korniotis and Kumar (2011)). Our empirical evidence indicates that variation in openness is a new determinant of variation in value creation.[3]

Finally, our study is related to research in psychology that explores the geography of personality traits. This research has so far relied on survey responses that are averaged across respondents in the same state or county. Rentfrow, Gosling, and Potter (2008) as well as Elleman, Condon, Russin, and Revelle (2018) find persistent differences across U.S. states with regards to the Big-Five personality traits and openness in particular. Rentfrow, Gosling, Jokela, Stillwell, Kosinski, and Potter (2013) along with Obschonka, Schmitt-Rodermund, Silbereisen, Gosling, and Potter (2013) show that personality profiles that load high on openness correlate with proxies for innovation and entrepreneurship.[4] By using the playlists of radio stations across many MSAs and over many years, we provide an alternative proxy for openness that captures the preference of residents toward adopting (consuming) new products. Our proxy of openness is broader than any aggregate personality trait in order to capture local cultural norms. Distinct from survey-based measures, our openness proxy can

[3]Chui, Titman, and Wei (2010) find that national culture is a determinant of investor behavior and country-level returns, while Grinblatt and Keloharju (2001) explore culture's influence on household equity portfolios. Chui, Lloyd, and Kwok (2002) find that culture influences capital structure.

[4]McCrae and Terracciano (2005) and Kajonious and Mac Giolla (2017) study country-level aggregate personality traits. Rossberger (2014) provides evidence of a significant positive country-level correlation between openness and national innovativeness, which is largely mediated through national cultural practices.

easily be calculated for a large number of MSAs over many years in a consistent manner. While our findings are consistent with previous studies detailing the geographic concentration of new ventures, we specifically link openness to the value creation of firms and the growth opportunities arising from new products.

The remainder of this paper is structured as follows. In Section 2, we detail the construction of our openness proxy and provide summary statistics for the main variables used in this study. In Section 3, we discuss MSA-level results of the impact of openness on value creation, while Section 4 provides firm-levels results underlying the mechanism behind this impact. Section 5 then concludes.

2 Openness

Our main hypothesis is that MSAs vary in their openness towards new products and that this variation explains entrepreneurial activity and value creation. Thus, we argue that a MSA's openness and the value created by local firms is partly determined by local cultural norms.

2.1 Measuring Openness

We measure MSA-level openness using the "consumption" of new music proxied for by the music played on local radio stations. While individuals consume music in many different ways, radio stations have long been an important channel for music consumption, especially for new music.[5] According to Rossman (2015), U.S. adults in 2010 listen to the radio for an average of 15 hours per week, suggesting that radio stations continue to have an important

[5]Radio airplay remains an important arbiter of a song's popularity. This importance underlies several "payola" (pay-to-play) scandals in which record companies bribed radio stations to play a song (Rossman 2015).

role in music consumption even after the arrival of streaming services.[6] Furthermore, Rossman (2015) reports that radio conglomerates do not impose centralized playlists on their affiliated radio stations. Instead, the playlists of radio stations are determined by individual radio station programmers who tailor their playlists to local audiences in order to maximize advertising revenue. Indeed, Ahlkvist (2001) concludes that for radio station programmers "*developing an ear for music is important, but the ear that is valued is not one that knows quality music when it hears it, but one that is tuned into what the station's listeners hear in a record*".

We obtain radio station playlists for 2000 to 2019 from Mediabase, a company that tracks the playlists of thousands of radio stations across the United States. As described by Rossman (2015), Mediabase monitors most of the commercial FM stations in the United States. We select radio stations that predominately play songs in English and exclude stations that focus on sports, news, and religion. After matching radio stations with metropolitan statistical areas (MSAs), we are left with 44 MSAs that have at least three radio stations as well as the headquarters of at least five public firms in each year of our sample period from 2000 to 2019. During our sample period, these 44 MSAs represent about 149 million people, about half of the U.S. population, while the public firms headquartered in these cities comprise nearly 90% of the total market capitalization of all public firms in COMPUSTAT during our sample period. The total number of radio stations averages 1,102 per year, increasing from 700 in the year 2000 to 1,489 in the year 2019.

Annual radio station playlists typically record the 126 songs with the most plays for each individual radio station each year. For 30% of the station-year playlists, fewer than 126 songs are reported. We remove any playlist with fewer than 10 songs in a year (about 7% of all data) and use all other playlists. For every song on a station's playlist, the number of

[6]Television reduced radio listening more than streaming services according to Rossman (2015). Despite the emergence of streaming services, Rossman (2015) concludes that "*we will continue to have some kind of curated audio experience that feels like (and is probably called) radio*", with Sorensen (2007) providing empirical evidence that curation drives adoption.

plays in each calendar month is also recorded. While we know the year of the initial release for every song, we infer the month of its initial release based on the first month it appears on any playlist in our sample. With this information, we can determine for each station how many of the up to 126 top songs the station plays in a given year are songs released in that year and how many of those are played by the station in the first month they appear in our data. For example, in Appendix Table A1, we list the top 126 songs played by KIIS-FM in Los Angeles in 2019. For each song, the table lists the total number of plays by this station in 2019. While the top-ranked songs are played thousands of time, the Song "Last Hurrah", which is ranked 126 is only played 103 times in 2019.[7] Appendix Table A1 column 5 also lists the year of the initial release of the song. For songs released in 2019, column 5 also reports the first month a song appeared on the playlist of any radio station in our sample. For songs released in 2019, column 6 indicates the first month the song is played by this station. If the station's first time equals the release month, column 7 lists the number of plays in that month. Overall, we can determine when a song is a newly released song, which radio stations played a newly released song in the first month of its release, and whether a radio station played a newly released song often enough in the first month of its release to place the station among the top 5 in the United States. For example, 70 of the 126 top songs (55.6%) for KIIS-FM in 2019 were also released in 2019, while in the case of 50 of these songs (39.7%) KIIS-FM played the songs in their first month of release. Finally, based on the number of plays for these 50 songs, KIIS-FM was among the top 5 stations to play 13 (10.3%) of them.

In order to characterize openness at the MSA level, we average the corresponding three fractions across all stations in a MSA and year to obtain NEW Release, NEW, and NEW Top 5. Panel A of Table 1 reports summary statistics for all three measures, suggesting that on average 38.0% of songs per year are new and that 17.5% are new and first played in

[7]This exponential decline is common across radio station playlists, with Appendix Figure A1 illustrating this decline across all stations and years.

their release month. Only 6.4% of songs are played often enough in their release month to ensure the MSA has a station among the top 5 for that song and month. Panel B of Table 1 reports the pair-wise correlations between the alternative proxies for openness. While all three proxies capture openness to new music, our study emphasizes the early adoption of new music and therefore we use NEW as our main proxy for openness throughout this paper. However, consistent with the high correlations in Panel B of Table 1 between NEW and these alternative proxies, later results confirm that our main finding is robust to alternative proxies for openness.

One limitation of our data is that we observe only the top 126 songs per station in each year. However, given that for most stations the number of times a song is played declines rapidly with the song's rank, the relevant air time our data captures is substantial. Indeed, for the average (median) station the number of total plays, the sum of songs times plays, is 59,000 (61,000) per year. Assuming that radio stations play 10 songs per hour and therefore about 87,600 songs per year, for the average (median) station, our data covers 67.35% (69.63%) of songs played. Thus, our data utilizes a large number of songs when characterizing the openness of individual radio stations. Furthermore, it is unlikely that the unobserved songs, which receive far less airplay, would exhibit significantly different openness as those on the playlists we observe.

Another concern with our approach might be that the supply of new music, while in principle uniform across all MSAs, varies across different music genres and that the composition of radio station genres also varies across MSAs. Panel C of Table 1 reports the average MSA-level value of NEW for each of the five genres in our data set. The "Other" genre includes dance, rhythmic adult contemporary, as well as adult album alternative has the largest fraction of new songs played in the first month, while the "Pop" genre has the smallest fraction. Panel C also reports the average MSA-year proportion of radio stations by genre. Not surprisingly, Pop is on average the most common radio station genre. However, to facilitate a later robustness test, we also construct a genre-adjusted version of NEW by

standardizing the station-year fraction of new songs using the corresponding genre-specific mean and standard deviation in that year and then averaging the standardized metric across all radio stations in a MSA and year. The last row of Table 1 Panel A reports the summary statics for NEW Genre, whose correlation with NEW is 0.596 according to Panel B of Table 1.

2.2 Determinants of Openness

Appendix Table A2 reports the average between 2000 and 2019 for NEW Release, NEW, and NEW Top 5 for each MSA in our sample. For all three proxies, we observe significant variation in openness across MSAs. On average, radio stations in the top 5 MSAs (New York, Los Angeles, San Francisco, Seattle, and Chicago) have an average NEW of 0.238, while radio stations in the bottom 5 MSAs (Jacksonville, Raleigh, Birmingham, Orlando, and Louisville) have an average NEW of 0.131. Consistent with persistent cross-sectional differences in NEW, MSA fixed effects explain about 36% of the variation in annual MSA-level openness. At the same time, Figure 1 illustrates the time series variation in the cross-sectional average of NEW. This time series variation is likely related to time series variation in the production and release of new music. Indeed, year fixed explain about 37% of the variation in annual MSA-level openness.

In Table 2, we explore various determinants of the MSA-level openness proxy NEW. In column 1, we use a survey-based measure of the personality trait "Openness". As described in Stuetzer, Audretsch, Obschonka, Gosling, Rentfrow, and Potter (2018), data on openness along with extroversion, agreeableness, conscientiousness, and neuroticism is collected from a large number respondents between 2003 and 2009 as part of the Gosling–Potter Internet project on the Big-Five personality traits. Personality traits are assessed based on the extent to which respondents agree or disagree with 44 statements using a five-point Likert-style rating scale. Based on participants' home ZIP codes, individual-level personality traits are

aggregated to obtain average personality traits for a large number of MSAs, with on average 2,557 respondents per MSA. Summary statistics for all five personality traits are reported in Panel D of Table 1. Consistent with the motivation of our music-based approach, NEW is significantly related to the average MSA-level personality trait Openness. Specifically, a one-standard-deviation increase in this personality trait corresponds to a 0.015 increase in NEW. As the standard deviation of NEW is 0.047 according to Table 1 Panel A, approximately one-third of the variation in NEW can be attributed to variation in the Openness personality trait. In column 2, we include the other four personality traits as well. While we find a significantly negative association between NEW and Conscientiousness, the positive association with the personality trait Openness remains statistically significant.

In column 3, we consider several MSA-level characteristics that might be correlated with the adoption of new music as well as the economic outcomes we hypothesize openness promotes, such as entrepreneurship and growth opportunities arising from innovation. We define all variables in Appendix Table A3 and provide summary statistics for the MSA-level characteristics in Table 1 Panel D. In particular, we consider the time-varying population size (Population, in logs of millions of people) and population density (Density, population per square mile), as well as ethnic diversity in 1980 (Diversity, population fraction of the largest ethnic group in 1980). All three dimensions might increase openness as well as economic vibrancy, for example, through increased interactions between individuals (see, e.g., Ciccone and Hall (1996), Alesina and La Ferrara (2005), Ottaviano and Peri (2006)). We also include additional time-varying population characteristics such as the natural log of annual per-capita income (Income), age (Age, in years), as well as the fraction of the adult population with a college degree (Education, as a percentage of the population). Younger, higher income, and better educated individuals might exhibit greater openness, but they might also be associated with better growth opportunities, either because growth opportunities attract them to a MSA or because they create growth opportunities for local firms in the MSA (Derrien, Kecskes, and Nguyen (2022)). We also include a proxy for the local climate that

counts the number of days with pleasant weather (Pleasant Days) since pleasant weather might attract workers with greater openness. As in Dougal, Parsons, and Titman (2021), a day is classified as having pleasant weather if the mean temperature is between 55 degrees and 75 degrees Fahrenheit, the minimum temperature is above 45 degrees, the maximum temperature is below 85 degrees, and there is no significant precipitation or snow depth. The number of radio stations (Stations) for each MSA and year may also be relevant since a larger number of radio station could be correlated with more competition among radio station, and hence the faster adoption of new music, or indicate a a more economically vibrant MSA. Finally, given the potential importance of industry structure as well as research and development (R&D) for value creation (see, for example, Duranton and Puga (2001)), we include MSA-level proxies for both; the annual Herfindahl index for industry concentration based on the market capitalization of each of the 11 Global Industry Classification Standard (GICS) categories (Diversification) and the average non-zero R&D expenditure relative to total assets across all firms in the MSA (R&D). When all MSA-level controls are included, we observe a substantial increase in the adjusted R^2 relative to only including year fixed effects (adjusted R^2 of 37%). As population and income have a significant relationship with NEW, large prosperous MSAs appear to have greater openness.

Finally, column 4 reports that the personality trait Openness is not absorbed by these MSA-level characteristics. In contrast, the other personality traits have an insignificant relationship wtih NEW. Thus, of the Big-Five personality traits, only Openness is related to NEW, which provides reassurance that NEW is a valid proxy for MSA-level openness.

3 Openness and MSA-level Value Creation

MSAs differ significantly in their openness. We hypothesize that MSAs with greater openness are more economically vibrant with more entrepreneurial activity. Moreover, we hypothesize that greater openness allows local firms to better capitalize on their growth opportunities,

leading to greater value creation.

We begin our analysis at the MSA-level. In preliminary results, we examine the association between openness and both the number of new ventures funded by venture capital and their success as well as the proportion of local public firms that are growth or value firms. We then directly assess the value that investors place on the expected growth opportunities of public firms in different MSAs. Finally, we provide several robustness checks.

Our main empirical approach uses a linear panel regression model that relates an MSA-level outcome, $Y_{j,t}$, for MSA j in year t to our openness measure, $\text{NEW}_{j,t}$, that reflects the tendency of the average radio station in a MSA to play new music in the month of its release:

$$\text{Y}_{j,t} \quad = \quad \beta_1 \, \text{NEW}_{j,t} + \gamma \, \text{X}_{j,t} + \text{Year}_t + \epsilon_{j,t} \, . \tag{1}$$

As MSA-level culture is highly persistent, lagged values of NEW, in year $t-1$ for example, produce similar results. The use of contemporaneous NEW in the above panel regressions is simply consistent with investors conditioning on a MSA's prevailing local culture when forming their expectations of growth and its associated implications for value creation. Unless otherwise noted, we control for the MSA-level variables introduced in column 3 of Table 2 as well as for year fixed effects. Standard errors are double-clustered by MSA and year. All variables are defined in Appendix Table A3, with summary statistics provided in Panel D of Table 1.

3.1 Preliminary Results

3.1.1 New Ventures

Openness is associated with an environment conducive to innovation and entrepreneurship. In particular, by enabling firms to learn from early adopters, positive attitudes towards new experiences should be valuable for start-ups that often introduce new products.

We therefore examine whether the number of new ventures funded by venture capital varies across MSAs as a function of their openness and whether new ventures in MSAs with greater openness are more likely to succeed. Crunchbase data allows us to study the annual number of new ventures that receive funding from venture capitalists (VCs) between 2000 and 2012. We also identify the number of successful exits, defined as VC-backed new ventures that are either acquired or have an initial public offering within 7 years of being funded.

As Table 1 Panel E reveals, the average number of new ventures (New Ventures) is 22.782 per year, while the average number of successful exits (Exits) is only 5.158, consistent with the high failure rate of start-ups. However, variation for both outcome variables is substantial. In our analysis, we use ln(1 + New Ventures) as well as ln(1+ Exits) as transformed variables whose standard deviations are 1.179 and 1.035, respectively.

Table 3 reports regression results for both outcomes. Column 1 reports a strong association between the number of VC-backed new ventures and NEW. As column 2 shows, this association is robust to controlling for a large number of possible confounders, such as population and education. A one-standard deviation increase in NEW is approximately associated with a 20% increase in the number of VC-backed new ventures. Columns 3 and 4 show that openness is not only positively associated with the number of new ventures, but also with the number of successful exits for new ventures. That is, relative to the number of new ventures, MSAs with greater openness have a larger number of successful exits. A one-standard deviation increase in NEW is approximately associated with a 14% increase in the number of successful exits.

This preliminary evidence is consistent with a positive association between openness and entrepreneurial activity, motivating our subsequent analysis of value creation. Importantly, in contrast to later results involving Tobin's q, the number of new ventures does not directly depend on market valuations, which are strongly influenced by the effect of competition.

3.1.2 Growth versus Value Firms

Given the larger number of successful start-ups in MSAs with greater openness, we ask whether MSAs with higher openness have a relatively larger number of growth firms and possibly a smaller number of value firms among the public firms headquartered in the MSA. For each public firm headquartered in one of the MSAs in our sample, we calculate the firm's annual Tobin's q as the ratio of the firm's year-end market capitalization plus total debt to total assets. Each year, growth firms are those in the top third of the annual industry-adjusted distribution of Tobin's q, while value firms are those in the bottom third of this annual distribution.[8] For each MSA and year, we then calculate the proportion of growth and value firms relative to all firms headquartered in the MSA that year to define Growth and Value, respectively.

The summary statistics for Growth and Value in Table 1 Panel E show that while by construction the average proportion of growth and value firms is about 0.33, there is again substantial variation in these proportions across MSAs.

To the extent that being headquartered in a MSA with greater openness confers better growth opportunities to firms in ways that are valuable to investors, we expect a significant positive association between NEW and Growth. At the same time, Value might be smaller in MSAs with greater openness, especially if greater openness is associated with higher prices for labor, rent, and other locally-priced inputs that could make MSAs with greater openness less attractive for less innovative firms.

The results in Table 4 indicate that MSAs with higher openness have indeed a significantly higher proportion of growth firms, and a significantly lower proportion of value firms. Focusing on columns 2 and 4, a one-standard-deviation increase in NEW is associated with a 2pp increase in the proportion of growth firms and a 2pp decrease in the proportion of value firms. This finding provides a link between the results for new ventures reported previously

[8] We use the 11 GICS categories as industries.

and our next results for MSA-level Tobin's q.

3.2 Main Results

In our main MSA-level analysis, we directly test whether MSAs with greater openness have relatively more valuable growth opportunities as captured by the average Tobin's q of local public firms. Firms located in MSAs with greater openness might be valued more highly if investors expect them to have an advantage at, for example, introducing new products, learning more rapidly through feedback from nearby early adopters, and building on a first-mover advantage to achieve scale and mitigate competition (see, e.g, Arrow (1962), Spence (1979, 1981), Glazer (1985), Katz and Shapiro (1985, 1986), Lieberman and Montgomery (1988)).

While we emphasize how openness can influence the adoption of new products, openness should also extend to the adoption of new ideas and processes as well as the acquisition of new skills. Consequently, openness can also increase labor productivity. We control for characteristics of a MSA's population and workforce that might correlate with innovation, such as education, age, and income (see, e.g., Derrien, Kecskes, and Nguyen (2022)). However, while culture is not limited to a subset of highly-skilled workers, we do not rule out a positive association between MSA-level openness and value-creation through the labor market. Finally, as Dougal, Parsons, and Titman (2021) point out, certain frictions are required such that imperfect competition for labor (or other inputs such as real estate) allows firms to capture a portion of the value creation attributable to openness.

In order to examine MSA-level value creation, we obtain annual Tobin's q for all public firms headquartered in one of the 44 MSAs in our sample between 2000 and 2019. After winsorizing firm-level Tobin's q at the 1st and 99th percentile, we subtract the annual industry average Tobin's q to account for industry-differences in firm valuations. We then average the industry-adjusted Tobin's q across all firms in a MSA, weighting all firms equally or

alternatively by total assets to obtain Q (EW) and Q (VW). Panel E of Table 1 reports summary statistics for firm-level as well as industry-adjusted MSA-level Tobin's q.

Table 5 reports results on the association between MSA-level Tobin's q and openness. Controlling for a large set of possible confounders, we find a significantly positive association for both equal- as well as value-weighted MSA-level Tobin's q. Based on the estimates in columns 2 and 4, a one-standard-deviation increase in NEW is associated with a 0.11 increase in MSA-level Tobin's q, which is approximately one third of its standard deviation. That is, openness exhibits a significant association with MSA-level value creation as measured by Tobin's q.

Before further analyzing the relationship between openness and Tobin's q, we provide a number of robustness checks.

3.3 Robustness

We address three sets of concerns. First, we separately drop the five MSAs with the largest populations, highest incomes, and the most education to ensure that our result are not driven by a subset of outlier MSAs. Second, we provide evidence using alternative proxies of openness derived from our playlist data to show that our results are not due to the specific construction of NEW. Finally, we address endogeneity concerns due to omitted variables and reverse causality.

3.3.1 Exceptional MSAs

The 44 MSAs in our sample exhibit significant differences along several dimensions. In particular, several MSAs are exceptional in terms of their population, income, and education levels, dimensions that might make them unusual in terms of their economic importance as well as their growth opportunities. In Table 6, we therefore repeat our main regression from Table 5 after removing the five MSAs with the highest average population (columns 1 and

2), highest average per capita income (columns 3 and 4), and highest average education level (columns 5 and 6) during our sample period. The coefficient estimates for NEW remain positive in all specifications. Thus, the positive impact of openness on value creation is unlikely to be driven by a subset of exceptionally large, wealthy, or highly educated MSAs.

3.3.2 Alternative Openness Proxies

Our main openness proxy NEW captures the extent to which the average radio station in a MSA is an early adopter of new music. That is, the frequency with which the average radio station plays a new song in the first month of its release. As we discuss in Section 2, our data allows for the construction of alternative proxies for openness, such as NEW Release, which simply captures the fraction of new songs played in a year or NEW Top 5 which indicates when a song played by a radio station is not only a new song played in its first month of release, but is also played sufficiently often to place the station among the top 5 stations in the United States.

In columns 1 through 4 of Table 7, we report results from our main regression using the alternative proxies NEW Release and NEW Top 5. As the results show, both alternative proxies for openness have a significant association with the average MSA-level Tobin's q (Q (EW)). A one standard deviation increase in NEW Release or in NEW Top 5 is associated with an increase in MSA-level Tobin's q of 0.10 and 0.08, respectively.

As also discussed in Section 2 and shown in Table 1, the adoption of new music varies across different genres. Since the genre composition of radio stations might differ across MSAs, we also construct a genre-adjusted measure of NEW, which we call NEW Genre. In columns 5 and 6, we repeat our main regression using NEW Genre. We again find a significant association and a similar effect size. One standard deviation increase in NEW Genre is associated with an increase in MSA-level Tobin's q of 0.07. Therefore, differences in genre compositions do not appear to drive our result.

3.3.3 Endogeneity Concerns

Our results so far establish a significant association between MSA-level Tobin's q and openness as measured through the adoption of new music. However, two concerns make it difficult to interpret the association as a causal effect of openness on value creation. First, the relationship could be confounded by other omitted MSA-level characteristics. Second, MSAs with many growth opportunities might develop greater openness either because growth opportunities change the culture of the existing population or as growth opportunities change the population's composition.

To address the first point, we exploit changes of openness over our sample period and relate them to changes in MSA-level Tobin's q. However, since openness is persistent, year-to-year changes in NEW are unrelated to annual changes in Tobin's q. But our sample period of 20 years is long enough to record meaningful variation of openness over time such that we are able to augment our baseline specification with MSA fixed effects. The results in column 1 of Table 8 suggest that omitted time-invariant MSA-level characteristics have a limited impact on the association between NEW and MSA-level Tobin's q, reducing the estimated coefficient for NEW by only about 25%.

To address concerns about reverse causality, we implement an instrumental variable (IV) regression using instruments that predate our sample period by a century. In particular, we hypothesize that MSA-level openness at the beginning of the 21st century is partly related to ethnic diversity at the end of the 19th century. In particular, we hypothesize that residents of ethnically more diverse MSAs were more exposed to different cultural practices and therefore developed greater openness compared to residents of ethnically less diverse MSAs. Similarly, we argue that MSAs in which a century ago parents were more likely to give their children less common first names had greater openness at the time, and would continue to have greater openness during our sample period.

Specifically, we instrument openness using two variables detailed in Bazzi, Fiszbein and

Gebresilasse (2020)'s study of individualism; birthplace diversity in 1890 (Manson et al. (2019)) and infrequent first names in 1910 (Ruggles et al. (2019)). Birthplace diversity (Birthplace Diversity) is based on an Herfindahl index constructed from the different countries in which a MSA's residents in 1890 were born. Infrequent first names (Infrequent Names) refers to the 1910 MSA-level share of children of native-born parents aged between 0 to 10 whose first names are not among the top 10 most popular names in their Census division.[9] Both instruments involve census observations about a century before the start of our sample period and should therefore be immune to the concern that growth opportunities captured by Tobin's q between 2000 and 2019 influenced openness.

Columns 2, 4, and 6 of Table 8 report first-stage results, for each instrument individually as well as jointly. Both instruments are significantly positively associated with our openness proxy NEW, and all F-statistics from the first-stage are above 40, ruling out concerns about weak instruments. Results from the second-stage regression of equal-weighted MSA-level Tobin's q on the instrumented NEW variables are reported in columns 3, 5, and 7. The effect of NEW on MSA-level Tobin's q is significant in all three cases. The size of the effect is four to five times larger compared to the results reported in Table 5. This difference could arise in a number of ways. First, it is possible that the non-instrumented regression results are downward biased relative to the true effect of openness on value creation. Second, since the IV estimates represent local average treatment effects (LATE), they can reflect heterogeneity in the treatment effect. Finally, it is possible that the instruments affect value creation through other channels than exclusively the adoption of new music. Regardless, the IV results should counter concerns about reverse causality.

[9]We equal-weight county-level data across the counties that are part of an MSA.

4 Mechanism

In this section, we explore firm-level data to gain a better understanding of the relationship between opennes and value creation. We first relate annual firm-level Tobin's q to MSA-level openness. We then examine the effect of openness on Tobin's q for young firms. Finally, we provide evidence on the importance of openness for new product introductions by firms.

4.1 Openness and Firm-level Value Creation

We evaluate the association between firm-level Tobin's q and MSA-level openness using the following panel regression:

$$\mathrm{Q}_{i,j,t} \quad = \quad \beta_1 \, \mathrm{NEW}_{j,t} + \gamma \, \mathrm{X}_{j,t} + \text{Industry-Year}_{i,t} + \epsilon_{i,j,t} \, . \tag{2}$$

The dependent variable $Q_{i,j,t}$ is firm i's Tobin's q in MSA j in year t. We include all firms headquartered in one of the 44 MSAs in our sample between 2000 and 2019 (see Table 1 Panel E for summary statistics). To account for time-varying industry-level differences in Tobin's q, we include industry-year fixed effects based on the 11 Global Industry Classification Standard (GICS) categories. We also include the same MSA-level controls as in the corresponding MSA-level panel regressions reported in Table 5. All standard errors are double-clustered by MSA and year.

Columns 1 and 2 of Table 9 Panel A report the results for the panel regression. Consistent with the MSA-level results as well as with our hypothesis that value creation is positively associated with MSA-level openness, we find a significantly positive association between openness and firm-level Tobin's q. The point estimate reported in column 2 implies that a one-standard-deviation increase in NEW (0.047) is associated with a 0.10 increase in Tobin's q, very similar to the MSA-level effects.

In related work, Dougal, Parsons, and Titman (2021) identify education and pleasant

weather as determinants of MSA-level value creation. Intuitively, firms located in more educated MSAs with better weather are able to attract more productive workers. While the results in column 2 offer some support for this labor productivity channel, our openness proxy NEW exerts a distinct impact on firm value that is only slighted affected by the inclusion of these MSA-level controls.

In column 3, we include firm fixed effect to explore variation in NEW and Tobin's q over time. Similar to the inclusion of MSA-level fixed effects above, we find that the association between openness and Tobin's q is robust to controlling for time-invariant firm characteristics. The coefficient estimate is about 20% smaller with a p-value of about 6.30%.

In columns 4 and 5, we report first- and second-stage results from an IV regression using the same two instruments as in Table 8. We again find a highly significant effect of NEW on Tobin's q. As before, the effect size increases, although by less than in the corresponding MSA-level regression.

Finally, in Panel B of Table 9 we explore the association between openness and firm-level Tobin's q for different industries, by performing separate panel regression for each of the 11 industries in our sample. We find positive associations for 8 out of the 11 industries, with statistical significance in 6 of the 8 cases. These results suggest that the importance of openness is not limited to firms in a particular industry, while the strength of the association varies across industries.

4.2 Firm Age

While we find a significantly positive association between firm-level Tobin's q and openness in our sample of all firms, we expect firms whose valuations are more dependent on growth opportunities involving new products to benefit more from openness. Conversely, firms whose valuations are more dependent on cost control than growth are predicted to benefit less from openness. Instead, these firms may be adversely affected by openness if labor, rent, and

other inputs priced locally are more expensive due to competition from innovative firms.

To explore firm-level heterogeneity in the association between NEW and Tobin's q, we examine variation by firm age, as young firms are more likely to release new products and rely on nearby customers than old firms. We measure a firm's age by the number of years since its initial public offering (IPO). We classify firm-year Tobin's q observations as belonging to young firms if age is less than or equal to 10 years, to middle-aged firms if age is between 10 and 30, and to old firms if age is 30 years or more. With these thresholds, about one third of our observations fall into each age group.

In Table 10, we report results when interacting NEW with an indicator variable (Young) for young firms. Columns 1 and 2 reveals that the association between NEW and Tobin's q is at least twice as pronounced for young firms compared to other firms. In column 3, we include an additional interaction term of NEW with an indicator variable (Old) for old firms. We find no statistically significant difference between old firms and middle-aged firms, suggesting that openness is particularly important for young firms, but matters less for all other firms.

While the differential impact by firm age is consistent with our hypothesis, it also mitigates concerns about omitted MSA-level variables that are correlated with openness and affect value creation. Specifically, any such omitted variable would be required to have its association with firm-level value creation also vary by firm age.

4.3 New Product Introductions

In our final analysis, we provide evidence supporting our hypothesis that openness' positive impact on value creation operates through growth opportunities due to new products. We specifically examine the empirical association between firm-level new product introductions and MSA-level openness.

To examine this association, we use the data in Mukherjee, Thornquist, and Zaldokas

(2022) on the introduction of new products. This data consists of firm-year observations that count the number of new product introductions by firms in a given year. The Mukherjee, Thornquist, and Zaldokas (2022) methodology searches the LexisNexis News database for company press releases that are tagged under the subject "New Products" with corresponding headlines that include keywords such as "Launch", "Product", "Introduce", "Begin", and "Unveil". The authors then download the resulting press releases and parse out the firm ticker and the announcement date.

The overlap between our respective samples allows for an analysis of new product introductions between 2000 and 2006. Specifically, we examine firm-level data on new product introductions. Provided openness facilitates the adoption of new products and local firms introduce new products to take advantage of openness, NEW is predicted to be positively associated with the number of new product introductions.

Table 11 reports a significantly positive association between NEW and the (log) number of new product introductions in column 1 for all firms in the sample.[10] As indicated by column 2, the association loses statistical significance once we include our MSA-level controls. However, among the subset of young firms, columns 3 and 4 indicate the (log) number of new product introductions remains significantly positively associated with openness after including the MSA-level controls. As in prior specifications involving firm-level observations, industry by year fixed effects are included, with standard errors double-clustered by MSA and year.

Overall, consistent with the product demand channel, greater openness appears to facilitate the introduction of new products by young firms.

[10]Specifically, using the same variable transformation as in earlier empirical tests involving, for example, new ventures, the firm-year dependent variable is ln(1 + number of new product introductions).

5 Conclusions

We provide an explanation for the important role of U.S. cities in value creation based on differences in city-level openness. Specifically, we study openness toward the adoption of new products and argue that openness allows local firms to better capture valuable growth opportunities through the successful development and early introduction of new products.

We construct a novel proxy for openness using MSA-level data from radio station playlists. This proxy is based on the adoption of new music and varies significantly across MSAs. Empirically, we find a robust positive association between openness and proxies of value creation such as the number of new ventures funded by venture capital, the number of successful exits by new ventures, the proportion of growth firms, and Tobin's q. These positive associations are robust to large set of controls, including differences in MSA-level demographics, weather, and average R&D expenditures. An instrumental variables procedure confirms that openness is highly persistent with variation across MSAs being evident more than a century before the start of our sample period. The instrumental variable procedure also confirms that reverse causality is not responsible for the positive impact of openness on value creation.

Consistent with the importance of openness to the adoption of new products, our results are especially strong for young firms that are more likely to depend on new products. Furthermore, firm-level evidence on new product introductions reinforces that openness facilitates the adoption of new products. Thus, openness can increase value creation by allowing firms to capitalize on their growth opportunities, especially for firms attempting to establish a first-mover advantage in their product markets.

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Table 1: This table reports summary statistics for the important variables in our study as well as correlations between our proxies for openness. Panel A contains summary statistics for four openness proxies, while Panel B contains their correlations. Panel C contains summary statistics for the genre proportions constructed as the fraction of radio stations in a MSA whose genre is classified as Pop, Rock, Country, Urban, or Other. Panel D then contains summary statistics for MSA-level personality traits and characteristics used as control variables in later regressions. Panel E contains summary statistics for the outcome variables used as

Panel A: MSA-level openness proxies

					Percentile		
	N	Mean	Std. Dev.	Min	10th	50th	90th	Max
NEW Release	880	0.380	0.050	0.250	0.320	0.376	0.447	0.573
NEW	880	0.175	0.047	0.082	0.122	0.169	0.234	0.428
NEW Top 5	880	0.064	0.038	0.009	0.026	0.056	0.114	0.267
NEW Genre	880	-0.009	0.129	-0.730	-0.161	-0.002	0.135	0.522

Panel B: Correlations between MSA-level openness proxies

	NEW Release	NEW	NEW Top 5	NEW Genre
NEW Release	1			
NEW	0.724***	1		
	(0.000)			
NEW Top 5	0.497***	0.664***	1	
	(0.000)	(0.000)		
NEW Genre	0.365***	0.596***	0.561***	1
	(0.000)	(0.000)	(0.000)	

Panel C: MSA-level genre proportions

					Percentile		
	N	Mean	Std. Dev.	Min	10th	50th	90th	Max
Pop Proportion	880	0.395	0.097	0.100	0.273	0.385	0.500	0.667
Rock Proportion	880	0.183	0.096	0.000	0.077	0.182	0.304	0.500
Country Proportion	880	0.166	0.089	0.000	0.083	0.167	0.279	0.667
Urban Proportion	880	0.208	0.119	0.000	0.069	0.200	0.375	0.571
Other Proportion	880	0.047	0.059	0.000	0.000	0.000	0.125	0.250
Pop NEW	880	0.137	0.061	0.019	0.070	0.126	0.221	0.420
Rock NEW	805	0.250	0.089	0.000	0.143	0.248	0.355	0.636
Country NEW	806	0.135	0.049	0.016	0.075	0.135	0.190	0.476
Urban NEW	808	0.200	0.070	0.000	0.119	0.193	0.296	0.425
Other NEW	382	0.286	0.195	0.000	0.040	0.270	0.579	0.846

Table 1: Continued

Panel D: MSA-level personality traits, characteristics, and instruments

	N	Mean	Std. Dev.	Min	Percentile 10th	50th	90th	Max
Openness	44	3.701	0.038	3.637	3.653	3.697	3.747	3.791
Conscientiousness	44	3.519	0.028	3.457	3.485	3.519	3.556	3.586
Extraversion	44	3.325	0.027	3.257	3.286	3.327	3.365	3.379
Agreeableness	44	3.648	0.027	3.579	3.611	3.650	3.682	3.710
Neuroticism	44	2.980	0.028	2.934	2.944	2.976	3.017	3.051
Stations	880	10.409	2.914	3.000	7.000	10.000	14.000	21.000
Age	880	36.858	1.943	31.754	34.490	36.609	39.519	41.834
Diversity	880	0.180	0.107	0.039	0.076	0.158	0.279	0.650
Education	880	31.263	6.149	18.020	24.340	30.340	40.040	50.820
Diversification	880	0.300	0.177	0.039	0.124	0.254	0.569	0.921
Income	880	44.256	10.391	26.675	32.378	42.775	57.868	102.406
Pleasant Day	880	67.795	29.507	34.000	49.000	62.000	89.000	183.000
Population	880	3.395	3.380	0.477	0.998	2.207	6.099	19.335
Density	880	569.556	301.130	34.637	286.416	503.798	979.888	1957.704
R&D	880	0.133	0.331	0.000	0.010	0.065	0.281	7.573
Income (Log)	880	10.672	0.223	10.191	10.385	10.664	10.966	11.537
Population (Log)	880	14.715	0.762	13.074	13.813	14.607	15.624	16.777
Birthplace Diversity	860	0.325	0.184	0.007	0.081	0.372	0.555	0.641
Infrequent Names	860	0.684	0.048	0.598	0.631	0.686	0.758	0.784

Panel E: Value-creation outcome variables

	N	Mean	Std. Dev.	Min	Percentile 10th	50th	90th	Max
New Ventures	559	22.782	53.006	1.000	1.000	7.000	47.000	624.000
Exits	559	5.158	13.245	0.000	0.000	1.000	11.000	138.000
New Ventures (Log)	559	2.301	1.179	0.693	0.693	2.079	3.871	6.438
Exits (Log)	559	1.072	1.035	0.000	0.000	0.693	2.485	4.934
Value	880	0.331	0.13	0.000	0.167	0.333	0.5	0.8
Growth	880	0.325	0.133	0.000	0.154	0.333	0.483	0.8
MSA-level industry-adjusted Tobin's c	880	0.000	0.310	-1.235	-0.364	0.006	0.347	2.041
MSA-level industry-adjusted Tobin's c	880	-0.177	0.340	-1.636	-0.484	-0.186	0.080	2.206
Tobin's q: Firm level	26,810	1.855	1.702	0.127	0.790	1.309	3.467	23.411
New Product Introductions	3,462	2.696	7.824	0.000	0.000	1.000	6.000	100.000

Table 2: The table provides the results from regressing our openness proxy, NEW, on five personality traits (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism), the number of radio stations (Stations), and demographic as well as economic control variables (Age, Diversity, Education, Industrial Diversification, Income, Pleasant Day, (log) Population, Density, and R&D). All columns include year fixed effects. Standard errors are double-clustered at the MSA and year level, with p-values reported in parentheses beneath the coefficients. Significance levels are denoted by asterisks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

	1	2	3	4
	NEW			
Openness	0.391***	0.310**		0.210**
	(0.003)	(0.029)		(0.050)
Conscientiousness		-0.429**		-0.121
		(0.049)		(0.542)
Extraversion		0.026		0.032
		(0.866)		(0.809)
Agreeableness		0.085		0.140
		(0.640)		(0.318)
Neuroticism		0.122		0.188
		(0.603)		(0.358)
Stations			0.001	0.000
			(0.634)	(0.828)
Age			0.003	0.002
			(0.163)	(0.400)
Diversity			-0.032	-0.026
			(0.167)	(0.381)
Education			-0.001	-0.000
			(0.544)	(0.663)
Diversification			0.007	0.014
			(0.626)	(0.244)
Income			0.079**	0.063*
			(0.023)	(0.058)
Pleasant Day			0.000	0.000
			(0.491)	(0.766)
Population			0.019**	0.017**
			(0.029)	(0.029)
Density			-0.000	-0.000
			(0.474)	(0.459)
R&D			0.002	0.003
			(0.440)	(0.416)
Constant	-1.274***	-0.219	-1.051***	-2.338
	(0.008)	(0.905)	(0.006)	(0.129)
Observations	880	880	880	880
Adjusted R-squared	0.470	0.538	0.594	0.615
Year FE	YES	YES	YES	YES

Table 3: The table reports the results from regressing the (log) number of New Ventures and Exits on our openness proxy NEW. Exits are defined by an aquisition of Initial Public Offering within 7 years of the venture being funding. The Crunchbase data covers the period from 2000 to 2012. Standard errors are clustered at the year level, with p-values reported in parentheses beneath the coefficients. Significance levels are denoted by asterisks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

	1	2	3	4
	New Ventures (Log)		Exits (Log)	
NEW	18.431***	4.982***	1.039*	1.645**
	(0.000)	(0.000)	(0.094)	(0.011)
New Ventures (Log)			0.788***	0.709***
			(0.000)	(0.000)
Stations		0.092***		0.015
		(0.000)		(0.170)
Age		0.087***		0.002
		(0.000)		(0.888)
Diversity		-0.557*		0.228
		(0.094)		(0.366)
Education		0.081***		0.008
		(0.000)		(0.230)
Diversification		-0.699***		0.120
		(0.000)		(0.285)
Income		0.565*		0.859***
		(0.082)		(0.001)
Pleasant Day		0.007***		0.002***
		(0.000)		(0.002)
Population		0.450***		-0.090*
		(0.000)		(0.062)
Density		-0.000		-0.000
		(0.118)		(0.167)
R&D		-0.034		0.004
		(0.330)		(0.876)
Constant	-110.563***	34.666*	64.513***	109.259***
	(0.000)	(0.073)	(0.000)	(0.000)
Observations	559	559	559	559
R-squared	0.349	0.797	0.817	0.833
Year FE	YES	YES	YES	YES

Table 4: The table presents the results from regressions of the proportion of growth firms and value firms on NEW. Columns 1 and 2 provide the results for the proportion of growth firms at the MSA-year level, defined as those firms in the highest tercile of industry-adjusted Tobin's q. Columns 3 and 4 provide the results for the proportion of value firms, defined as firms in the lowest tercile of industry-adjusted Tobin's q. Columns 2 and 4 include the full set of MSA-level control variables: the number of radio stations (Stations) along with Age, Cultural Diversity, Education, Industry Diversification, Income, Pleasant Day, Population, Density, and R&D. All specifications include year fixed effects. Standard errors are double-clustered at the MSA and year level, with p-values reported in parentheses beneath the coefficients. Significance levels are denoted by asterisks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

	1	2	3	4
	Growth		Value	
NEW	0.576**	0.522**	-0.384*	-0.561**
	(0.015)	(0.031)	(0.097)	(0.030)
Stations		-0.007*		0.006
		(0.083)		(0.169)
Age		-0.015**		-0.000
		(0.047)		(0.962)
Diversity		-0.193		-0.364***
		(0.235)		(0.000)
Education		0.004		-0.000
		(0.245)		(0.892)
Diversification		-0.066		0.049
		(0.353)		(0.394)
Income		0.151		-0.099
		(0.248)		(0.455)
Pleasant Day		0.000		0.000
		(0.197)		(0.370)
Population		-0.026		0.003
		(0.337)		(0.872)
Density		0.000		0.000
		(0.523)		(0.549)
R&D		-0.019		0.001
		(0.426)		(0.964)
Constant	0.224***	-0.464	0.399***	1.404
	(0.000)	(0.683)	(0.000)	(0.241)
Observations	880	880	880	880
Adjusted R-squared	0.016	0.150	0.003	0.138
Year FE	YES	YES	YES	YES

Table 5: This table reports the results from regressing MSA-level aggregate Tobin's q on our openness proxy NEW. Tobin's q is aggregated by equal-weighting firms, as in columns 1 and 2, and by value-weighting firms by their respective book value, as in columns 3 and 4. All specifications include year fixed effects. The primary independent variable of interest is NEW. Columns 2 and 4 also include control variables; the number of radio stations (Stations) along with Age, Diversity, Education, Industrial Diversification, Income, Pleasant Day, Population, Density, and R&D. Standard errors are double-clustered at the MSA and year levels, with p-values reported in parentheses beneath the coefficients. Significance levels are denoted by asterisks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

	1	2	3	4
	Tobin's q: Equal-Weighted		Tobin's q: Value-Weighted	
NEW	2.873***	2.509***	2.316*	2.183**
	(0.000)	(0.000)	(0.079)	(0.038)
Stations		-0.015		-0.011
		(0.171)		(0.301)
Age		-0.036**		0.002
		(0.035)		(0.857)
Diversity		-0.167		-0.079
		(0.632)		(0.804)
Education		0.009		0.011
		(0.185)		(0.186)
Diversification		-0.171		-0.116
		(0.182)		(0.587)
Income		0.419		0.086
		(0.174)		(0.843)
Pleasant Day		0.001		0.001
		(0.171)		(0.364)
Population		-0.078		-0.060
		(0.130)		(0.362)
Density		0.000		-0.000
		(0.265)		(0.997)
R&D		0.097		0.070
		(0.150)		(0.242)
Constant	-0.562***	-2.713	-0.629***	-0.983
	(0.000)	(0.356)	(0.006)	(0.821)
Observations	880	880	880	880
Adjusted R-squared	0.070	0.181	0.085	0.128
Year FE	YES	YES	YES	YES

Table 6: This table reports the results from regressing MSA-level aggregate Tobin's q on NEW after separately excluding the top 5 five MSAs with the highest average population, highest average per capita income, and highest average education levels during our sample period. Columns 2, 4, and 6 include controls for the number of radio stations (Stations) along with Age, Diversity, Education, Industrial Diversification, Income, Pleasant Day, Population, Density, and R&D. All models include year fixed effects. Standard errors are double-clustered at the MSA and year levels, with p-values reported in parentheses beneath the coefficients. Significance levels are denoted by asterisks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

	1	2	3	4	5	6
	Exclude Top 5 Population		Exclude Top 5 Income		Exclude Top 5 Education	
NEW	3.789***	3.294***	2.161***	2.406***	2.914***	2.538***
	(0.000)	(0.000)	(0.003)	(0.001)	(0.000)	(0.000)
Constant	-0.714***	-3.964	-0.463***	-0.757	-0.590***	-3.166
	(0.000)	(0.206)	(0.001)	(0.845)	(0.000)	(0.425)
Observations						
Adjusted R-squared	780	780	780	780	780	780
Year FE	0.080	0.196	0.028	0.146	0.069	0.163
Controls	NO	YES	NO	YES	NO	YES

Table 7: This table reports the results from regressing MSA-level aggregate Tobin's q on alternative proxies for openness. Columns 1 and 2 use the proportion of the station level playlist comprised of songs released in the same year (NEW Release). Columns 3 and 4 use the proportion of the station level playlists comprised of songs that have the 5 most plays of a new song in its first month of release (NEW Top 5). Columns 5 and 6 account for variation across music genres (NEW Genre). All specifications include year fixed effects. The primary independent variables of interest are openness proxies. Columns 2, 4, and 6 also include control variables; the number of radio stations (Stations) along with Age, Diversity, Education, Industrial Diversification, Income, Pleasant Day, Population, Density, and R&D. Standard errors are double-clustered at the MSA and year levels, with p-values reported in parentheses beneath the coefficients. Significance levels are denoted by asterisks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

	1	2	3	4	5	6
	Tobin's q - Equal Weighted					
NEW Release	2.447***	2.083***				
	(0.002)	(0.001)				
NEW Top 5			2.877***	2.171**		
			(0.001)	(0.014)		
NEW Genre					0.606***	0.539***
					(0.000)	(0.000)
Stations		-0.014		-0.017		-0.013
		(0.228)		(0.128)		(0.245)
Age		-0.034*		-0.028*		-0.031*
		(0.062)		(0.099)		(0.065)
Diversity		-0.212		-0.278		-0.107
		(0.547)		(0.422)		(0.759)
Education		0.011		0.008		0.011
		(0.136)		(0.297)		(0.148)
Diversification		-0.172		-0.149		-0.168
		(0.193)		(0.258)		(0.198)
Income		0.453		0.491		0.438
		(0.156)		(0.124)		(0.213)
Pleasant Day		0.001		0.001		0.002*
		(0.132)		(0.242)		(0.064)
Population		-0.051		-0.073		-0.058
		(0.308)		(0.187)		(0.263)
Density		0.000		0.000		0.000
		(0.321)		(0.202)		(0.394)
R&D		0.088		0.094		0.108
		(0.195)		(0.140)		(0.148)
Constant	-0.988***	-3.953	-0.243***	-3.492	-0.053	-3.077
	(0.001)	(0.210)	(0.000)	(0.239)	(0.143)	(0.366)
Observations	880	880	880	880	880	880
Adjusted R-squared	0.033	0.166	0.072	0.171	0.031	0.167
Year FE	YES	YES	YES	YES	YES	YES

Table 8: This table reports the results of regressing MSA-level (equal-weighted) Tobin's q on our openness proxy NEW with MSA fixed effects in column 1. Later columns report the results from an instrumental variables procedure. Results for the first stage are reported in columns 2, 4, and 6, which create three predicted NEW variables by conditioning on birthplace diversity in 1890 and infrequent first names in 1910, separately and jointly. The second stage results are reported in columns 3, 5, and 7 for MSA-level (equal-weighted) Tobin's q during the sample period for each of these three predicted NEW variables. All specifications include year fixed effects. All columns also include the full set of control variables; the number of radio stations (Stations) along with Age, Diversity, Education, Industrial Diversification, Income, Pleasant Day, Population, Density, and R&D. Standard errors are double-clustered at the MSA and year levels, with p-values reported in parentheses beneath the coefficients. Significance levels are denoted by asterisks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

	1	2	3	4	5	6	7
	Tobin's q	1^st Stage	2^nd Stage	1^st Stage	2^nd Stage	1^st Stage	2^nd Stage
	Equal Weighted	NEW	Tobin's q	NEW	Tobin's q	NEW	Tobin's q
NEW	1.959***		11.530***		12.410**		11.742***
	(0.000)		(0.000)		(0.022)		(0.000)
Birthplace Diversity		0.042***				0.048***	
		(0.000)				(0.000)	
Infrequent Names				0.075***		0.105***	
				(0.007)		(0.000)	
Stations	-0.005	0.001*	-0.022***	0.001	-0.022***	0.001*	-0.022***
	(0.687)	(0.060)	(0.002)	(0.165)	(0.006)	(0.071)	(0.002)
Age	-0.027	0.002**	-0.063***	0.004***	-0.066***	0.003***	-0.064***
	(0.527)	(0.012)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Diversity	0.000	0.001	0.410*	-0.045***	0.451	0.010	0.420*
	(1.000)	(0.953)	(0.068)	(0.001)	(0.161)	(0.518)	(0.051)
Education	-0.011	-0.000	0.014***	-0.000	0.015***	-0.000	0.014***
	(0.709)	(0.533)	(0.002)	(0.130)	(0.006)	(0.922)	(0.002)
Diversification	-0.066	0.008	-0.270***	0.013**	-0.278***	0.013**	-0.272***
	(0.619)	(0.189)	(0.003)	(0.045)	(0.008)	(0.035)	(0.003)
Income	0.188	0.058***	-0.277	0.083***	-0.345	0.062***	-0.293
	(0.544)	(0.000)	(0.337)	(0.000)	(0.464)	(0.000)	(0.269)
Pleasant Day	0.000	0.000***	0.001	0.000**	0.001	0.000**	0.001
	(1.000)	(0.007)	(0.219)	(0.041)	(0.388)	(0.021)	(0.223)
Population	-0.401*	0.017***	-0.272***	0.020***	-0.290**	0.017***	-0.276***
	(0.070)	(0.000)	(0.000)	(0.000)	(0.012)	(0.000)	(0.000)
Density	0.000	-0.000***	0.000***	-0.000**	0.000***	-0.000**	0.000***
	(0.743)	(0.004)	(0.001)	(0.027)	(0.007)	(0.025)	(0.000)
R&D	0.059*	0.002	0.074*	0.002	0.072	0.001	0.073*
	(0.051)	(0.566)	(0.094)	(0.504)	(0.131)	(0.742)	(0.098)
Constant	4.859	-0.769***	6.762**	-1.187***	7.683	-0.931***	6.984**
	(0.337)	(0.000)	(0.040)	(0.000)	(0.196)	(0.000)	(0.017)
Observations	880	860	860	860	860	860	860
Adjusted R-squared	0.457	0.622		0.612		0.628	
F-Stat		45.455		43.592		45.153	
Year FE	YES	YES	YES	YES	YES	YES	YES
MSA FE	YES	NO	NO	NO	NO	NO	NO

Table 9: Panel A reports the results from regressing firm-level Tobin's q on our openness proxy NEW in columns 1 to 3. Industry by year fixed effect are included in each specification with column 3 also containing firm fixed effects. Columns 4 and 5 report the results from an instrumental variables procedure at the firm-year level. Column 4 reports on the predicted NEW variable from the first stage that conditions on birthplace diversity in 1890 and infrequent first names in 1910. Column 5 reports on the second stage that regresses Tobin's q during the sample period on the predicted NEW variable. The control variables in columns 2 through 5 include the number of radio stations (Stations) along with Age, Diversity, Education, Industrial Diversification, Income, Pleasant Day, Population, Density, and R&D. Industry by year fixed effects are included in each specification with standard errors double-clustered at the MSA and year levels. Panel B reports the results from regressing firm-level Tobin's q on NEW within each of the eleven GICS industry sectors. For these intra-industry regressions, year fixed effects are included and standard errors are clustered at the year level. p-values are reported in parentheses beneath the coefficients. Significance levels are denoted by astericks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

Panel A: Firm-level regressions

	1	2	3	4	5
				1^st Stage	2^nd Stage
	Firm-Level Tobin'q			NEW	Tobin's q
NEW	2.476***	2.176***	1.751***		4.508***
	(0.000)	(0.001)	(0.002)		(0.000)
Birthplace Diversity				0.063***	
				(0.000)	
Infrequent Names				0.147***	
				(0.000)	
Stations		-0.005	-0.006	0.000**	-0.004
		(0.597)	(0.618)	(0.043)	(0.326)
Age		-0.021	-0.040	0.006***	-0.039***
		(0.120)	(0.262)	(0.000)	(0.001)
Diversity		-0.511	-2.062**	0.017***	-0.435**
		(0.165)	(0.020)	(0.000)	(0.016)
Education		0.016*	0.008	0.001***	0.014***
		(0.053)	(0.212)	(0.000)	(0.000)
Diversification		0.027	-0.045	0.015***	0.023
		(0.884)	(0.744)	(0.000)	(0.783)
Income		0.172	-0.064	0.013***	0.087
		(0.574)	(0.882)	(0.000)	(0.568)
Pleasant Day		0.003***	-0.001	0.000***	0.002***
		(0.008)	(0.543)	(0.000)	(0.000)
Population		-0.093*	-0.069	0.027***	-0.163***
		(0.084)	(0.551)	(0.000)	(0.000)
Density		0.000	0.000	-0.000***	0.000***
		(0.154)	(0.419)	(0.000)	(0.000)
R&D		0.178**	0.029	-0.002**	0.180***
		(0.024)	(0.347)	(0.025)	(0.000)
Constant	-0.474***	-0.803	3.022	-0.759***	1.697
	(0.000)	(0.767)	(0.431)	(0.000)	(0.334)
Observations	26,810	26,810	26,810	26,669	26,669
Adjusted R-squared	0.003	0.004	0.448	0.762	0.010
F-Stat				365.635	
Industry x Year FE	YES	YES	YES	YES	YES
Firm FE	NO	NO	YES	NO	NO

Table 9: Continued
Panel B: Firm-level regressions by industry

	Communication	Discretionary	Energy	Financials	Health	Industrials	IT	Materials	Real_estate	Staples	Utilities
NEW	-1.060	1.194*	-0.643	1.390***	7.479***	1.251	3.308***	-0.591	0.555	6.612***	5.817***
	(0.442)	(0.074)	(0.741)	(0.003)	(0.000)	(0.118)	(0.009)	(0.428)	(0.359)	(0.000)	(0.000)
Stations	-0.093***	-0.018*	0.069**	-0.004	-0.035	-0.022**	0.027*	-0.010	-0.004	0.042	0.009*
	(0.000)	(0.096)	(0.020)	(0.295)	(0.151)	(0.015)	(0.055)	(0.405)	(0.603)	(0.177)	(0.095)
Age	0.063	0.071***	-0.116***	-0.002	-0.083*	0.002	-0.115***	-0.025	-0.022*	-0.101***	-0.062***
	(0.136)	(0.000)	(0.000)	(0.816)	(0.065)	(0.880)	(0.001)	(0.130)	(0.050)	(0.005)	(0.000)
Diversity	-0.879*	-1.151***	-2.441***	-0.468***	-0.008	-0.844***	1.893***	-1.231***	-0.855***	-0.441	0.536***
	(0.078)	(0.001)	(0.005)	(0.001)	(0.991)	(0.000)	(0.000)	(0.005)	(0.001)	(0.553)	(0.000)
Education	0.042***	0.037***	0.015	0.005**	0.013	0.041***	-0.027**	0.005	-0.022***	0.013	0.013***
	(0.009)	(0.000)	(0.337)	(0.031)	(0.454)	(0.000)	(0.029)	(0.600)	(0.000)	(0.216)	(0.000)
Diversification	0.115	0.421	-0.131	-0.053	-0.096	0.001	-0.064	-0.467***	0.041	0.168	0.173*
	(0.707)	(0.132)	(0.811)	(0.546)	(0.815)	(0.992)	(0.849)	(0.002)	(0.783)	(0.703)	(0.062)
Income	-0.619	-0.415	-0.804	-0.293*	0.878	-1.310***	2.745***	1.143*	1.284***	0.278	-1.322***
	(0.255)	(0.206)	(0.128)	(0.080)	(0.274)	(0.000)	(0.000)	(0.088)	(0.000)	(0.550)	(0.000)
Pleasant Day	-0.001	-0.003***	0.012***	0.000	0.005***	-0.001	0.003***	0.007***	-0.001*	0.004	0.006***
	(0.667)	(0.000)	(0.002)	(0.680)	(0.002)	(0.146)	(0.002)	(0.002)	(0.082)	(0.121)	(0.000)
Population	0.399***	0.190***	-0.248**	-0.039	-0.289**	0.047	-0.362***	-0.255***	-0.044	-0.359***	0.103***
	(0.001)	(0.003)	(0.047)	(0.145)	(0.044)	(0.332)	(0.002)	(0.009)	(0.152)	(0.000)	(0.006)
Density	-0.001**	-0.001***	0.001*	0.000***	0.001**	-0.000	0.000	0.000*	-0.000*	0.001***	-0.000***
	(0.012)	(0.000)	(0.066)	(0.000)	(0.021)	(0.424)	(0.517)	(0.050)	(0.071)	(0.000)	(0.000)
R&D	0.176***	0.413**	0.262***	-0.042**	1.288**	-0.273**	0.014	0.086	-0.015	0.482*	-0.110
	(0.008)	(0.011)	(0.002)	(0.013)	(0.039)	(0.012)	(0.839)	(0.166)	(0.704)	(0.052)	(0.120)
Constant	-1.405	-1.580	14.842**	3.323*	-4.821	12.301***	-20.377***	-7.836	-11.299***	2.939	12.943***
	(0.783)	(0.624)	(0.018)	(0.055)	(0.468)	(0.001)	(0.000)	(0.228)	(0.000)	(0.616)	(0.000)
Observations	1,037	3,613	3,160	5,474	3,169	3,221	2,913	1,287	1,458	898	580
Adjusted R-squared	0.026	0.029	0.023	0.007	0.035	0.014	0.022	0.011	0.027	0.056	0.300
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 10: This table reports the results from a regression of firm-level Tobin's q on NEW with firm-level age indicators and interaction variables involving these age indicators. Young and Old are indicators for firms equal to or less than 10 years and 30 years or more since their IPO, respectively. Interaction variables involving NEW and Young as well as NEW and Old are then included. Industry by year fixed effects are included in each specification, with standard errors double-clustered at the MSA and year levels. p-values are reported in parentheses beneath the coefficients. Significance levels are denoted by astericks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

	1	2	3
	Firm-Level Tobin's q		
NEW	1.350**	1.350**	1.234
	(0.025)	(0.025)	(0.132)
Young	-0.199*	-0.199*	-0.350**
	(0.081)	(0.081)	(0.015)
NEW x Young	2.264***	2.264***	2.279***
	(0.001)	(0.001)	(0.002)
Old			-0.367**
			(0.026)
NEW x Old			0.190
			(0.801)
Stations		-0.004	-0.004
		(0.657)	(0.682)
Age		-0.019	-0.017
		(0.149)	(0.206)
Diversity		-0.527	-0.485
		(0.163)	(0.205)
Education		0.016**	0.017**
		(0.049)	(0.037)
Diversification		0.051	0.061
		(0.778)	(0.735)
Income		0.108	0.131
		(0.725)	(0.671)
Pleasant Day		0.002**	0.002**
		(0.013)	(0.016)
Population		-0.091*	-0.094*
		(0.088)	(0.094)
Density		0.000	0.000
		(0.142)	(0.138)
R&D		0.175**	0.177**
		(0.027)	(0.026)
Constant	-0.137	-0.137	-0.281
	(0.961)	(0.961)	(0.918)
Observations	26,810	26,810	26,810
R-squared	0.019	0.019	0.026
Industry*Year FE	YES	YES	YES

Table 11: This table reports the results of firm-year level regressions involving data on new product introductions from Mukherjee, Thornquist, and Zaldokas (2022). Columns 1 and 2 contain results for the (log) number of new product introductions across all the firms in the sample, while columns 3 and 4 focus on young firms that are 10 years or less since their IPO. The even numbered columns include MSA-level control variables. All specifications include industry by year fixed effects. The sample period is from 2000 to 2006. Standard errors are double-clustered by MSA and year, with p-values reported in parentheses beneath the coefficients. Significance levels are denoted by asterisks with ***, **, and * representing the 1%, 5%, and 10% levels, respectively.

	1	2	3	4
	(Log) New Product Introductions			
	All Firms		Young Firms	
NEW	2.558***	1.126	1.809***	2.147**
	(0.004)	(0.230)	(0.010)	(0.031)
Stations		-0.019		-0.044*
		(0.160)		(0.075)
Age		-0.004		-0.008
		(0.824)		(0.586)
Diversity		-0.288		-0.754
		(0.487)		(0.163)
Education		-0.001		-0.006
		(0.950)		(0.657)
Diversification		0.517*		0.259
		(0.056)		(0.202)
Income		0.162		0.249
		(0.768)		(0.694)
Pleasant Day		-0.000		0.000
		(0.592)		(0.754)
Population		0.164*		0.030
		(0.073)		(0.565)
Density		-0.000		-0.000
		(0.581)		(0.806)
R&D		-0.105**		-0.113
		(0.022)		(0.821)
Constant	0.371**	-3.174	0.403***	-1.755
	(0.019)	(0.510)	(0.008)	(0.750)
Observations	3,394	3,394	1,284	1,284
R-squared	0.082	0.088	0.109	0.122
Industry*Year FE	YES	YES	YES	YES

Table A1: The table reports on the playlist containing the top 126 songs in 2019 played by KIIS-FM in Los Angeles, CA. For songs released in 2019, column 5 also lists the first month it appeared on the playlist of any radi station in our sample. For songs released in 2019, column 6 indicates the first month the song is played by this station. If the station's first time equals the release month, column 7 lists the number of plays in that month. 70 of the 126 top songs (55.6%) of station KIIS-FM are released in 2019, while in the case of 50 songs (39.7%) the station played the songs in their first month of release. Finally, based on the number of plays for those 50 songs, station KIIS-FM is among the top 5 stations in the country to play new music for 13 (10.3%) songs.

		1	2	3	4	5	6	7	8	9	10
Rank	Plays	Artist	Song	Release Year	Month of Release	Release Date	First Month Station	First Month Plays	NEW Release	NEW	NEW Top 5
1	3840	Jonas Brothers	Sucker	2019	02	2019:02	2	3	1	1	1
2	3836	Sam Smith & Normani	Dancing With A Stranger	2019	01	2019:01	1	55	1	1	0
3	2952	Billie Eilish	Bad Guy	2019	03	2019:03	4	0	1	0	0
4	2722	Khalid	Talk	2019	02	2019:02	3	0	1	0	0
5	2650	Bad Bunny	Mia F/Drake	2018	00	2018	0	0	0	0	0
6	2441	Post Malone & Swae L	Sunflower	2018	00	-	0	0	0	0	0
7	2421	Ariana Grande	7 Rings	2019	01	2019:01	1	93	1	1	0
8	2410	Shawn Mendes & Camil	Senorita	2019	06	2019:06	6	43	1	1	0
9	2258	Lizzo	Truth Hurts	2017	00	-	0	0	0	0	0
10	2229	Ariana Grande	Thank U, Next	2018	00	-	0	0	0	0	0
11	2208	Khalid	Better	2018	00	-	0	0	0	0	0
12	1985	Ed Sheeran & Justin	I Don't Care	2019	05	2019:05	5	146	1	1	0
13	1975	Halsey	Without Me	2018	00	-	0	0	0	0	0
14	1915	Shawn Mendes	If I Can't Have You	2019	05	2019:05	5	194	1	1	0
15	1834	Khalid X Normani	Love Lies	2018	00	-	0	0	0	0	0
16	1807	Benny Blanco, Halsey	Eastside	2018	00	-	0	0	0	0	0
17	1805	Jonas Brothers	Only Human	2019	06	2019:06	6	1	1	1	0
18	1791	Ariana Grande	Break Up With Your Girlfriend	2019	02	2019:02	2	92	1	1	0
19	1729	Lewis Capaldi	Someone You Loved	2018	00	-	0	0	0	0	0
20	1723	Post Malone	Wow	2018	00	-	0	0	0	0	0
21	1568	Panic! At The Disco	High Hopes	2018	00	-	0	0	0	0	0
22	1531	Billie Eilish	When The Party's Over	2018	00	-	0	0	0	0	0
23	1448	Ariana Grande	Breathin	2018	00	-	0	0	0	0	0
24	1230	5 Seconds Of Summer	Youngblood	2018	00	-	0	0	0	0	0
25	1198	Bazzi	Mine	2017	00	-	0	0	0	0	0
26	1133	Sam Smith	How Do You Sleep?	2019	07	2019:07	7	37	1	1	0
27	1129	Shawn Mendes	In My Blood	2018	00	-	0	0	0	0	0
28	1101	Post Malone	Circles	2019	08	2019:08	8	23	1	1	0
29	1073	Ed Sheeran	Beautiful People F/Khalid	2019	06	2019:06	7	0	1	0	0
30	1055	Tyga	Taste F/Offset	2018	00	-	0	0	0	0	0
31	1049	Post Malone	Goodbyes F/Young Thug	2019	07	2019:07	7	199	1	1	0
32	1042	Shaed	Trampoline	2018	00	-	0	0	0	0	0
33	958	The Weeknd	Call Out My Name	2018	00	-	0	0	0	0	0
34	878	Post Malone	Better Now	2018	00	-	0	0	0	0	0
35	848	Selena Gomez	Lose You To Love Me	2019	10	2019:10	10	22	1	1	0
36	824	Dua Lipa	New Rules	2017	00	-	0	0	0	0	0
37	817	Bruno Mars & Cardi B	Finesse	2018	00	-	0	0	0	0	0
38	799	Calvin Harris & Dua	One Kiss	2018	00	-	0	0	0	0	0
39	779	5 Seconds Of Summer	Easier	2019	05	2019:05	5	61	1	1	1
40	769	Taylor Swift	Lover	2019	08	2019:08	8	6	1	1	0
41	766	Dj Snake/Selena/Ozun	Taki Taki	2018	00	-	0	0	0	0	0
42	758	Ava Max	Sweet But Psycho	2018	00	-	0	0	0	0	0
43	746	Travis Scott	Sicko Mode F/Drake	2018	00	-	0	0	0	0	0

Table A1: Continued

		1	2	3	4	5	6	7	8	9	10
Rank	Plays	Artist	Song	Release Year	Month of Release	Release Date	First Month Station	First Month Plays	NEW Release	NEW	NEW Top 5
44	712	Cardi B	I Like It F/Bad Bunny/J Balvi	2018	00	-	0	0	0	0	0
45	658	Lizzo	Good As Hell	2016	00	-	0	0	0	0	0
46	640	Jonas Brothers	Cool	2019	04	2019:04	4	85	1	1	0
47	628	Lil Nas X	Panini	2019	06	2019:06	7	0	1	0	0
48	606	Taylor Swift	You Need To Calm Down	2019	06	2019:06	6	93	1	1	0
49	568	The Chainsmokers F/	Who Do You Love	2019	02	2019:02	2	31	1	1	0
50	567	Billie Eilish	All The Good Girls Go To Hell	2019	04	2019:04	9	0	1	0	0
51	565	Saweetie	My Type	2019	04	2019:04	7	0	1	0	0
52	559	Dj Snake, J Balvin,	Loco Contigo	2019	06	2019:06	8	0	1	0	0
53	527	Ariana Grande & Soci	Boyfriend	2019	08	2019:08	8	181	1	1	0
54	521	Kendrick Lamar & Sza	All The Stars	2018	00	-	0	0	0	0	0
55	519	Maroon 5	Girls Like You F/Cardi B	2017	00	-	0	0	0	0	0
56	508	Gucci Mane/Bruno/Kod	Wake Up In The Sky	2018	00	-	0	0	0	0	0
57	493	Panic! At The Disco	Hey Look Ma, I Made It	2018	00	-	0	0	0	0	0
58	477	Fletcher	Undrunk	2019	01	2019:01	1	40	1	1	1
59	473	Chris Brown	No Guidance F/Drake	2019	06	2019:06	8	0	1	0	0
60	471	Ellie Goulding X Dip	Close To Me F/Swae Lee	2018	00	-	0	0	0	0	0
61	465	Post Malone	Psycho F/Ty Dolla $ign	2018	00	-	0	0	0	0	0
62	464	Taylor Swift	Me! F/Brendon Urie	2019	04	2019:04	4	45	1	1	0
63	463	Halsey	Graveyard	2019	09	2019:09	9	51	1	1	0
64	450	Daddy Yankee & Katy	Con Calma F/Snow	2019	01	2019:01	2	0	1	0	0
65	441	Cardi B & Bruno Mars	Please Me	2019	02	2019:02	2	109	1	1	0
66	440	Maroon 5	Memories	2019	09	2019:09	9	25	1	1	0
67	432	Ariana, Miley, Lana	Don't Call Me Angel	2019	09	2019:09	9	65	1	1	0
68	424	Katy Perry	Never Really Over	2019	05	2019:05	5	25	1	1	1
69	414	Lil Peep & Ilovemako	I've Been Waiting F/Falloutbo	2019	01	2019:01	1	1	1	1	1
70	410	Halsey	Nightmare	2019	05	2019:05	5	106	1	1	0
71	400	Drake	Nice For What	2018	00	-	0	0	0	0	0
72	391	Camila Cabello	Liar	2019	09	2019:09	9	87	1	1	0
73	385	Niall Horan	Nice To Meet Ya	2019	10	2019:10	10	103	1	1	0
74	379	Normani	Motivation	2019	08	2019:08	8	80	1	1	0
75	361	Lil Nas X	Old Town Road	2019	03	2019:03	4	0	1	0	0
76	349	Ariana Grande	God Is A Woman	2018	00	-	0	0	0	0	0
77	343	French Montana	Writing On The Wall	2019	09	2019:09	9	23	1	1	1
78	342	Bts	Boy With Luv F/Halsey	2019	04	2019:04	4	132	1	1	0
79	338	Lady Gaga & Bradley	Shallow	2018	00	-	0	0	0	0	0
80	336	Bazzi	Beautiful F/Camila Cabello	2017	00	-	0	0	0	0	0
81	318	Mark Ronson F/Miley	Nothing Breaks Like A Heart	2018	00	-	0	0	0	0	0
82	303	The Chainsmokers F/K	This Feeling	2018	00	-	0	0	0	0	0
83	300	Dua Lipa	Don't Start Now	2019	10	2019:10	10	7	1	1	1
84	289	5 Seconds Of Summer	Teeth	2019	08	2019:08	8	26	1	1	1
85	283	Ariana Grande	No Tears Left To Cry	2018	00	-	0	0	0	0	0
86	279	Bts	Make It Right F/Lauv	2019	04	2019:04	5	0	1	0	1
87	276	Gesaffelstein & The	Lost In The Fire	2019	01	2019:01	1	145	1	1	0
88	270	Marshmello	Happier F/Bastille	2018	00	-	0	0	0	0	0
89	268	Billie Eilish	Everything I Wanted	2019	11	2019:11	11	89	1	1	1
90	262	Mabel	Don't Call Me Up	2019	01	2019:01	3	0	1	0	0

Table A1: Continued

		1	2	3	4	5	6	7	8	9	10
Rank	Plays	Artist	Song	Release Year	Month of Release	Release Date	First Month Station	First Month Plays	NEW Release	NEW	NEW Top 5
91	260	Drake	God's Plan	2018	00	-	0	0	0	0	0
92	259	Miley Cyrus	Mother's Daughter	2019	05	2019:05	5	1	1	1	1
93	252	Lauv	I Like Me Better	2017	00	-	0	0	0	0	0
94	251	The Weeknd & Kendric	Pray For Me	2018	00	-	0	0	0	0	0
95	248	Ally Brooke	Low Key F/Tyga	2019	01	2019:01	1	2	1	1	0
96	243	Dua Lipa	Swan Song	2019	01	2019:01	1	30	1	1	0
97	218	Lauv & Troye Sivan	I'm So Tired...	2019	01	2019:01	4	0	1	0	0
98	213	The Chainsmokers	Call You Mine F/Bebe Rexha	2019	05	2019:05	5	1	1	1	0
99	208	Mark Ronson	Find U Again F/Camila Cabello	2019	05	2019:05	6	0	1	0	0
100	193	Juice Wrld	Lucid Dreams	2018	00	-	0	0	0	0	0
101	187	Megan Thee Stallion	Hot Girl Summer F/N. Minaj...	2019	08	2019:08	8	17	1	1	0
102	186	Camila Cabello	Consequences	2018	00	-	0	0	0	0	0
103	175	Delacey	My Man	2019	03	2019:03	4	0	1	0	0
104	169	G-Eazy & Halsey	Him & I	2017	00	-	0	0	0	0	0
105	168	Loud Luxury	Body F/Brando	2017	00	-	0	0	0	0	0
106	167	Zedd & Katy Perry	365	2019	02	2019:02	2	9	1	1	0
107	167	Lil Tecca	Ransom	2019	06	2019:06	8	0	1	0	0
108	164	Marshmello	Here With Me F/Chvrches	2019	03	2019:03	3	35	1	1	0
109	163	Ed Sheeran	Cross Me F/Chance/Pnb Rock	2019	05	2019:05	5	7	1	1	0
110	152	The Weeknd	Heartless	2019	11	2019:11	11	17	1	1	0
111	149	Notd & Felix Jaehn &	So Close F/Georgia Ku	2018	00	-	0	0	0	0	0
112	146	Bryce Vine	La La Land F/Yg	2019	02	2019:02	3	0	1	0	0
113	145	Silk City F/Diplo/Ma	Electricity F/Dua Lipa	2018	00	-	0	0	0	0	0
114	145	Nf	Time	2019	07	2019:07	8	0	1	0	0
115	141	Selena Gomez	Back To You	2018	00	-	0	0	0	0	0
116	140	Harry Styles	Adore You	2019	12	2019:12	12	140	1	1	0
117	132	Katy Perry	Small Talk	2019	08	2019:08	8	63	1	1	1
118	131	Calvin Harris & Sam	Promises	2018	00	-	0	0	0	0	0
119	122	Camila Cabello	Shameless	2019	09	2019:09	9	85	1	1	0
120	114	Why Don't We	What Am I	2019	08	2019:08	9	0	1	0	0
121	114	Lizzo	Juice	2019	01	2019:01	4	0	1	0	0
122	112	Avicii	Sos F/Aloe Blacc	2019	04	2019:04	4	17	1	1	1
123	108	Tiesto	Grapevine	2018	00	-	0	0	0	0	0
124	106	Zara Larsson	Ruin My Life	2018	00	-	0	0	0	0	0
125	104	Travis Scott	Wake Up F/The Weeknd	2018	00	-	0	0	0	0	0
126	103	Bebe Rexha	Last Hurrah	2019	02	2019:02	2	2	1	1	0

Table A2: This table reports the mean values for three MSA-level openness proxies (NEW Release, NEW, and NEW Top 5), the number of radio stations (Stations), as well as MSA-level demographic and economic characteristics (Age, Diversity, Education, Industrial Diversification, Income, Pleasant Day, Population, Density, and R&D) for each of the 44 MSAs in our sample.

MSA	NEW Release	NEW	NEW Top 5	Stations	Age	Diversity	Education	Diversification	Income	Pleasant Day	Population	Density	R&D
Atlanta-Sandy Springs-Marietta, GA	0.370	0.178	0.061	10.230	35.454	0.275	34.338	0.182	41.826	70	5.174	834.033	0.059
Austin-Round Rock-San Marcos, TX	0.372	0.173	0.086	8.502	34.083	0.119	39.714	0.139	45.588	62	1.765	412.673	0.177
Baltimore-Towson, MD	0.377	0.182	0.074	8.382	36.964	0.272	33.317	0.328	45.123	63	2.667	937.688	0.144
Birmingham-Hoover, AL	0.334	0.128	0.035	7.190	37.915	0.308	26.115	0.238	38.847	50	1.084	335.030	0.180
Boston-Cambridge-Quincy, MA-NH	0.390	0.197	0.074	16.500	35.997	0.080	42.829	0.215	60.624	56	4.638	754.182	0.271
Buffalo-Niagara Falls, NY	0.418	0.191	0.049	7.576	39.964	0.103	27.417	0.676	38.383	73	1.143	495.384	0.944
Charlotte-Gastonia-Rock Hill, NC-SC	0.380	0.166	0.049	11.366	35.244	0.230	31.934	0.348	41.284	65	1.984	577.091	0.053
Chattanooga, TN-GA	0.399	0.180	0.052	8.073	39.219	0.157	21.840	0.543	35.326	59	0.519	277.833	0.022
Chicago-Joliet-Naperville, IL-IN-WI	0.402	0.210	0.094	14.496	36.948	0.228	32.921	0.139	47.256	70	9.382	1026.508	0.066
Cincinnati-Middletown, OH-KY-IN	0.348	0.144	0.034	10.467	37.959	0.148	28.350	0.582	41.827	51	2.119	548.510	0.061
Cleveland-Elyria-Mentor, OH	0.376	0.171	0.035	9.082	39.586	0.192	26.836	0.213	40.213	57	2.097	1049.483	0.080
Columbus, OH	0.376	0.161	0.058	9.909	35.567	0.135	32.586	0.252	40.062	55	1.855	585.648	0.041
Dallas-Fort Worth-Arlington, TX	0.377	0.158	0.062	12.543	34.106	0.159	30.477	0.201	43.874	71	6.320	668.842	0.272
Denver-Aurora-Broomfield, CO	0.368	0.169	0.076	11.033	36.010	0.076	37.818	0.125	48.987	40	2.582	301.985	0.091
Detroit-Warren-Livonia, MI	0.379	0.172	0.052	12.328	37.517	0.220	27.133	0.512	41.503	62	4.345	618.430	0.034
Honolulu, HI	0.377	0.158	0.069	6.674	38.741	0.650	31.303	0.284	46.179	64	0.952	512.464	0.000
Houston-Sugar Land-Baytown, TX	0.353	0.150	0.044	9.060	33.869	0.218	28.515	0.051	46.353	60	5.946	682.677	0.104
Indianapolis-Carmel, IN	0.362	0.157	0.050	9.100	35.811	0.143	30.414	0.579	42.018	70	1.789	505.248	0.127
Jacksonville, FL	0.358	0.125	0.023	7.079	36.703	0.238	26.408	0.252	39.232	89	1.319	427.022	0.026
Las Vegas-Paradise, NV	0.390	0.183	0.064	11.719	36.891	0.137	21.156	0.232	38.904	59	1.888	47.570	0.052
Los Angeles-Long Beach-Santa Ana, CA	0.435	0.263	0.167	13.421	36.218	0.183	30.267	0.242	46.579	183	12.867	365.001	0.157
Louisville/Jefferson County, KY-IN	0.357	0.138	0.025	9.269	38.315	0.168	24.153	0.324	38.686	49	1.229	585.838	0.012
Memphis, TN-MS-AR	0.390	0.164	0.077	10.079	35.686	0.428	24.478	0.347	37.392	49	1.288	416.272	0.209
Miami-Fort Lauderdale-Pompano Beach, FL	0.374	0.159	0.052	16.727	38.412	0.206	28.353	0.325	43.714	70	5.546	1490.427	0.150
Milwaukee-Waukesha-West Allis, WI	0.384	0.160	0.036	9.343	36.153	0.122	30.753	0.154	44.259	64	1.547	394.174	0.027
Minneapolis-St. Paul-Bloomington, MN-WI	0.389	0.203	0.091	8.000	37.174	0.045	37.178	0.227	47.445	55	3.262	513.554	0.076
Nashville-Davidson--Murfreesboro--Franklin, TN	0.372	0.174	0.066	11.317	36.326	0.172	29.267	0.379	42.684	50	1.589	384.600	0.067
New York-Northern New Jersey-Long Island, NY-NJ-PA	0.450	0.269	0.152	11.335	39.067	0.215	35.936	0.056	57.537	67	18.945	1463.765	0.197
Oklahoma City, OK	0.378	0.156	0.044	9.744	36.315	0.137	27.685	0.331	39.774	54	1.260	293.039	0.014
Omaha-Council Bluffs, NE-IA	0.360	0.141	0.023	6.907	35.520	0.114	32.381	0.518	44.362	50	0.853	340.449	0.025
Orlando-Kissimmee-Sanford, FL	0.353	0.136	0.035	9.246	35.841	0.147	28.286	0.283	35.305	92	2.154	541.134	0.053
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.397	0.200	0.079	14.920	37.019	0.202	32.264	0.201	48.233	61	5.914	870.323	0.133
Phoenix-Mesa-Glendale, AZ	0.388	0.176	0.074	11.021	36.444	0.064	27.355	0.165	36.898	78	4.085	279.836	0.285
Pittsburgh, PA	0.365	0.167	0.031	9.137	40.909	0.085	28.653	0.180	42.802	58	2.374	507.602	0.068
Portland-Vancouver-Hillsboro, OR-WA	0.381	0.168	0.075	10.204	37.223	0.059	32.431	0.310	39.778	34	2.163	305.940	0.134
Raleigh-Cary, NC	0.340	0.127	0.035	7.430	34.948	0.279	41.357	0.251	43.512	62	1.097	308.758	0.320
Salt Lake City, UT	0.370	0.186	0.084	13.911	33.181	0.039	30.031	0.281	37.981	38	1.101	531.698	0.216
San Antonio-New Braunfels, TX	0.374	0.179	0.093	9.613	34.925	0.165	24.684	0.447	37.087	63	2.127	634.274	0.055
San Diego-Carlsbad-San Marcos, CA	0.386	0.175	0.066	11.834	36.506	0.125	34.366	0.319	46.208	182	3.099	687.711	0.344
San Francisco-Oakland-Fremont, CA	0.421	0.231	0.119	10.295	40.783	0.232	44.284	0.272	70.612	129	4.445	511.961	0.187
Seattle-Tacoma-Bellevue, WA	0.411	0.216	0.128	10.755	37.757	0.093	37.101	0.320	52.456	70	3.459	426.440	0.260
Tampa-St. Petersburg-Clearwater, FL	0.373	0.168	0.046	11.268	37.148	0.103	26.037	0.298	38.321	82	2.772	845.303	0.047
Tulsa, OK	0.386	0.159	0.036	8.674	36.571	0.136	25.230	0.209	44.451	49	0.936	181.438	0.042
Washington-Arlington-Alexandria, DC-VA-MD-WV	0.392	0.199	0.064	9.483	37.281	0.319	46.494	0.363	54.900	48	5.447	521.024	0.075

Table A3: Variable Descriptions

Variable	Description	Source
NEW Release	MSA-year level fraction equaling the average number of new songs played by radio stations relative to all songs played.	Mediabase
NEW	MSA-year level fraction equaling the average number of new songs played in the first month of release by radio stations relative to all songs played.	Mediabase
NEW Top 5	MSA-year level fraction equaling the average number of new songs played in the first month of release by radio stations that were among the top 5 stations to play the new song relative to all songs played.	Mediabase
NEW Genre	MSA-year level fraction that is formed after normalizing NEW within each of the five music genres.	Mediabase
Pop Proportion	Proportion of stations at the MSA-year level that identify as the Pop genre.	Mediabase
Rock Proportion	Proportion of stations at the MSA-year level that identify as the Rock genre.	Mediabase
Country Proportion	Proportion of stations at the MSA-year level that identify as the Country genre.	Mediabase
Urban Proportion	Proportion of stations at the MSA-year level that identify as the Urban genre.	Mediabase
Other Proportion	Proportion of stations at the MSA-year level that identify as the Other genre.	Mediabase
Openness	Reflects a person's tendency to be open-minded, imaginative, and curious about new ideas and experiences.	Gosling–Potter Internet project
Conscientiousness	Describes an individual's degree of organization, responsibility, dependability, and self-discipline in their approach to tasks.	Gosling–Potter Internet project
Extraversion	Refers to the extent to which someone is outgoing, sociable, and energized by social interactions and external stimulation.	Gosling–Potter Internet project
Agreeableness	Represents a person's inclination to be cooperative, friendly, empathetic, and considerate towards others.	Gosling–Potter Internet project
Neuroticism	Measures the degree of emotional instability, moodiness, anxiety, and sensitivity to stress that an individual experiences.	Gosling–Potter Internet project
Stations	MSA-year level count of the number of radio stations.	Mediabase
Age	MSA-year level median age of the population.	Census ACS
Diversity	1980 city wide ethnic concentration, which reflects the percentage of the population that represent that majority group.	US Census
Education	The percentage of poulation aged 25 and above with a bachelor's degree or higher.	Census ACS
Diversification	MSA-year level Herfindahl index based on the market capitalization of local firms across the 11 Global Industry Classification Standard (GICS) cate	Census ACS
Income	Income per capita of working age population.	Census ACS
Pleasant Day	Number of days in which the mean temperature is between 55 and 75°F, the minimum temperature is above 45°F and the maximum temperature is below 85°F, and there is no significant precipitation or snow depth.	Climate.gov
Population	Total number of people residing in the MSA per annum.	Census ACS
Density	Population divided by the land area in the MSA per annum.	Census ACS
R&D	Research Expenditure (XRD) / Total Book Assets (AT) of the firms per year at the MSA-year level.	Compustat
Income (Log)	Log per capita income of working age population at the MSA-year level.	Census ACS
Population (Log)	Log Population at the MSA-year level.	Census ACS
Birthplace Diversity	Birthplace Diversity is the Herfindahl index constructed from the different countries in which a MSA's residents in 1890 were born.	Manson et al. (2019)
Infrequent Names	The 1910 MSA-level share of children of native-born parents aged between 0 to 10 whose first names are outside of the top 10 most popular names in their Census division.	Ruggles et al. (2019)
New Ventures	MSA-year level count of the number of start-ups that received funding by venture capitalists	Crunchbase
Exits	MSA-year level count of the number of new ventures that were acquired or had an IPO within 7 years of being funded.	Crunchbase
New Ventures (Log)	Log (1 + MSA-year level count of the number of start-ups that received funding by venture capitalists).	Crunchbase
Exits (Log)	Log (1 + MSA-year level count of the number of new ventures that were acquired or had an IPO within 7 years of being funded).	Crunchbase
Value	Proportion of firms in the bottom tercile of industry-adjusted Tobin' s q in a given year.	Compustat
Growth	Proportion of firms in the top tercile of industry-adjusted Tobin's q in a given year.	Compustat
Tobin's q: Equal Weighted	MSA-year level aggregate Tobin's q from equal-weighting the Tobin's q of local firms	Compustat
Tobin's q: Value Weighted	MSA-year level aggregate Tobin's q from value-weighting the Tobin's q of local firms by their respective book value	Compustat
Tobin's q: Industry-adjusted Equal Weighted	MSA-year level aggregate Tobin's q from equal-weighting the industry-adjusted Tobin's q of local firms that subtracts the mean Tobin's q in the firm's industry that year.	Compustat
Tobin's q: Industry-adjusted Value Weighted	MSA-year level aggregate Tobin's q from value-weighting the industry-adjusted Tobin's q of local firms that subtracts the mean Tobin's q in the firm's industry that year.	Compustat
Tobin' s q: Firm level	Firm-level annual book debt plus market equity all divided by assets. Specifically, (AT−Annual LT − PreferredStock + TXDITC + CSHO ∗ PRCCC)/AT, where Preferred Stock equals PSTKL or PSTKRV if PSTKL is missing, or PSTK if both PSTKL and PSTKRV are missing.	Compustat
New Product Introductions	Firm-year count of the number of new product introductions between 2000 and 2006.	Mukherjee et al. (2022)

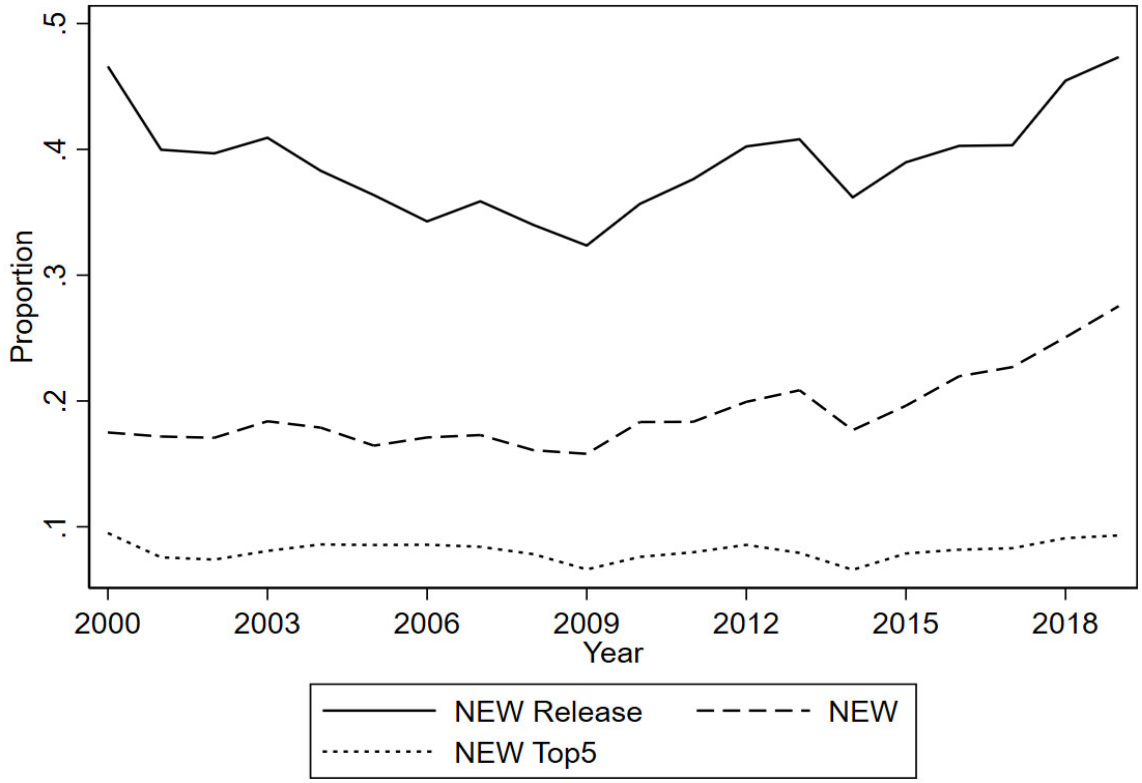

Figure 1: This figure illustrates the time series variation in three proxies for openness.

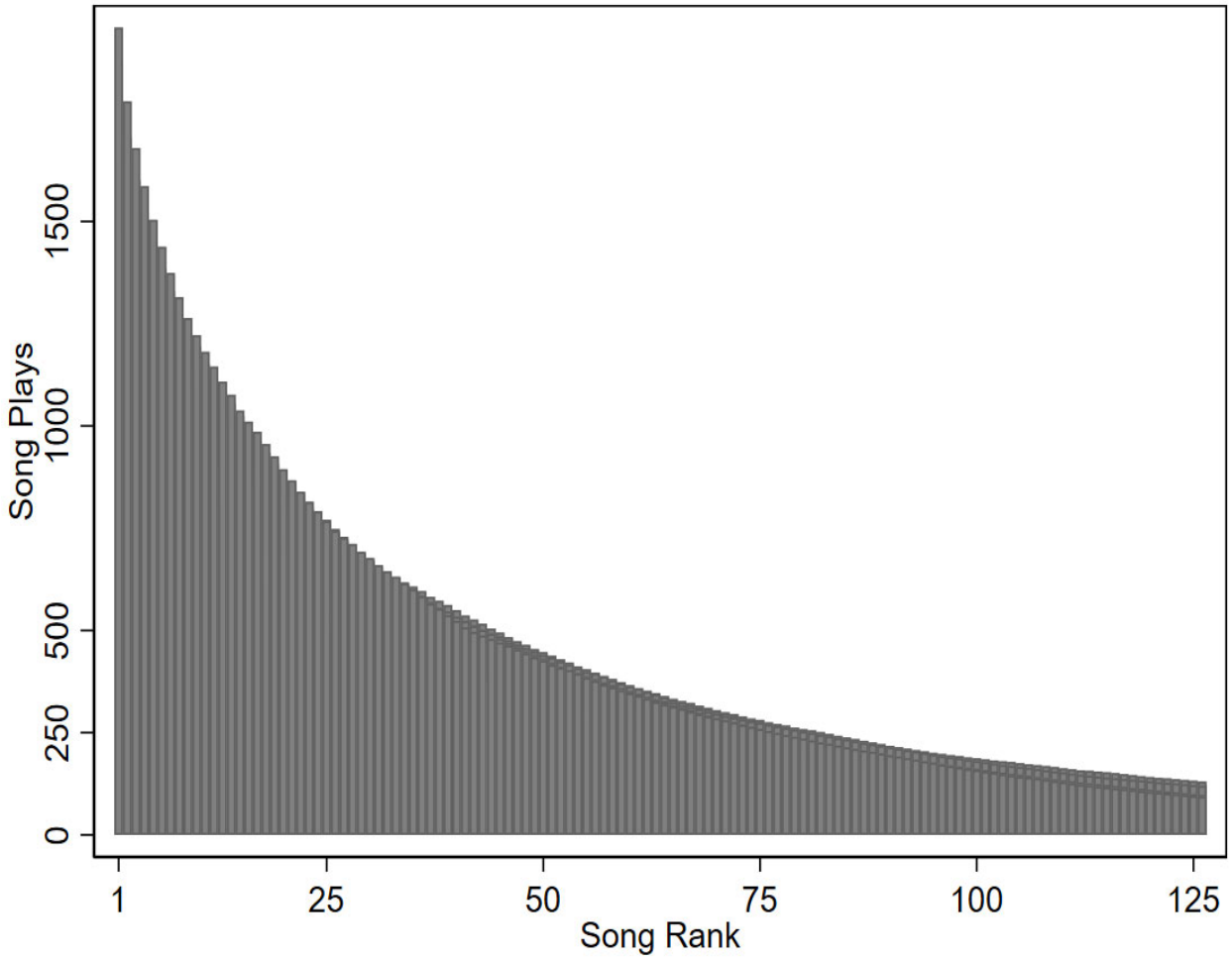

Figure A1: The histogram in this figure displays the average number of song plays by song rank across all years and stations.