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Incumbents, innovation, and competence: the emergence of recorded jazz, 1920 to 1929

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Abstract

We examine recorded jazz as a musical innovation of the early twentieth century. Consistent with much research on radical innovations, the dominant incumbent record companies exhibited hesitance and limited competence in offering jazz in its radical form. In contrast to much research, these same incumbent firms were first movers in recording an ''illegitimate,'' (but profitable) form of jazz. However, they would distance themselves from these early efforts, and they eventually responded to elite pressure against jazz by inserting symphonic elements (recording ''orchestras'' and white musicians) into the original, but illegitimate, form. We draw upon research on cultural industries to understand this and examine the competence of dominant incumbents in recording jazz. Using data on Midwest jazz recordings, our findings suggest diminished competence when they did record non-white jazz musicians. At the same time, these firms recorded jazz ''orchestras,'' with increased competence.

1. Introduction

Among Schumpeter's (1942) more captivating arguments is his hypothesis that capitalist industries are characterized by innovative entrepreneurs who become established incumbents, only to be challenged and replaced by a new set of innovative entrepreneurs. This hypothesis has fueled a growing body of work that seeks to verify and explain the following observation: radical innovations are pursued by market entrants to the detriment of incumbent firms that presently hold market power yet lack competence in this innovation

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(Foster, 1986; Henderson, 1993; Tushman and Anderson, 1986). Organizational sociologists and industrial organization economists provide at least three explanations for this observation. One highlights cases where incumbent firms recognize a radical innovation but find it too costly or risky to pursue (Arrow, 1983; Reinganum, 1983, 1985; Scherer and Ross, 1990) and, consequently, ignore the innovation altogether or attempt to thwart the innovators (Farrell and Saloner, 1986; Gilbert and Newberry, 1982). When the competitiveness of new innovators or the actual value of the innovation is misestimated, incumbents suffer. Another explanation argues that incumbents may attempt to produce the innovation but are less successful than challengers due to inertia associated with organizational age and/or size (Hannan and Freeman, 1989; Hedberg, 1981; Miller and Chen, 1994). A final explanation notes that new knowledge associated with the innovation may render an incumbent obsolete and thus incompetent in its production (Christensen, 1997; Henderson, 1993; Henderson and Clark, 1990; Tushman and Anderson, 1986).

We examine the commercialization of recorded jazz as an innovation of the early 1900s, when incumbent recording firms exhibited hesitance and limited competency in offering jazz. However, in contrast to the above explanations, these dominant firms were also the first movers into jazz and had substantial market success with initial recordings. This draws attention to what appears to be a contradiction. By being first to commercialize jazz, dominant incumbents invested in and committed to a radical innovation more rapidly and successfully than other competitors. Then why, after their successful commercialization of jazz, did these firms began to distance themselves from it and have difficulty in competently producing it?

We resolve this apparent contradiction by drawing upon research that examines the emergence and organization of cultural institutions and industries (Albert and Whetten, 1985; DiMaggio, 1982; Dowd, 2003; Dowd and Blyler, 2002; Glynn, 2002; Kenney, 1999; Levine, 1988; Lopes, 2002; Negus, 1999; Peterson, 1997; Ryan, 1985). It addresses, among other things, the tension that actors face when attempting to offer both legitimate (e.g., highbrow) and illegitimate (e.g., lowbrow) products. Building on this work, we argue that in our empirical case, dominant incumbents first dropped the innovative product and later participated in the social construction of a modified product that was not as radical or as contentious, thereby resulting in both reduced tension and competency.

Our focus on the commercialization of early jazz is particularly apt. Jazz emerged in an era when elites were active in keeping high and popular (''lowbrow'') culture in disparate worlds (Levine, 1989). Moreover, we are able to examine a key source of jazz's illegitimacy—its association with African-Americans (Dowd, 2003; Kenney, 1993; Leonard, 1962; Peretti, 1992; Schuller, 1968). We also focus on the extent to which jazz groups were identified as ''orchestras''—an identifier that signaled a cultivated sound familiar to elites (DiMaggio, 1992; Kenney, 1993; Lopes, 2002; Mooney, 1972; Peretti, 1997). In particular, we hypothesize that for dominant incumbents, low levels of experience and investment in ''illegitimate'' elements results in diminished competencies to produce jazz in its most radical form (e.g., recordings of African-American groups) but enhanced competencies to produce jazz in a less radical form that incorporates aspects of high culture (e.g., jazz orchestras).

In developing this resolution, we contribute, on the one hand, to the work by organizational and industrial organization scholars on the relationship between radical innovations

and incumbent firms and, on the other hand, to work by sociologists and historians on cultural markets. To the former, we suggest that innovations need not be technologically radical to render incumbents incompetent (Henderson, 1993). Incompetence can also occur with innovations that are culturally (e.g., aesthetically) radical. To scholars of cultural markets, we provide product-level evidence that a separation between high and low culture can affect the efficiency of production and help guide the evolution of commercialization (Dowd, 2003).

2. Incumbents and innovation

The early 1900s witnessed the maturation of the recording industry and the spread of jazz. The early recording industry was dominated by three firms—Edison Phonograph Company and Works (founded in 1887), Columbia Phonograph Company (founded in 1891 as American Gramophone Company), and Victor Talking Machine Company (founded in 1901). A fourth dominant firm of the 1920s, Brunswick–Balke–Collender Company, was founded in 1919. At the outset of the industry, the market for musical recordings was the same as the market for phonograph players; however, musical recordings became a distinct market after World War I (Kenney, 1999). Meanwhile, jazz music emerged from New Orleans and came to the Midwest with musicians—both African-American and lower class whites—who migrated from Louisiana and the rest of the South (Peretti, 1992; Schuller, 1968). Though New Orleans was the birthplace of jazz, Chicago and the Midwest were the home of recorded jazz until the late 1920s (Kenney, 1993; Kofsky, 1971; Slotkin, 1943).

The first firm to offer recorded jazz was the market leader, Victor Talking Machine Company. In 1917, Victor recorded a set of New Orleans musicians known as the Original Dixieland Jass Band. These Victor recordings would sell in the millions and would surpass such contemporaneous top-sellers as Enrico Caruso and the John Phillip Sousa Band (Brunn, 1960; Kenney, 1999; Leonard, 1962; Peretti, 1992). While Columbia recorded the same group before Victor, they chose not to release the recordings out of fear of being attacked by elites (Kenney, 1999). Apparently, Victor would later concur with Columbia. As Kenney (1999: 63) notes,

> Despite introducing the Original Dixieland Jazz Band [ODJB], the company [Victor] had not followed up on its popular success, disassociating itself from jazz. . .As *Talking Machine World* put it, two full years after Victor's introduction of the ODJB: ''The future of our industry lies in encouraging the sale of high-priced goods and the best records. It does emphatically not lie in pushing cheap machines and jazz records.''

Rather than benefit from being first movers in jazz, dominant incumbents, Columbia and Victor, struggled with balancing the desire to produce legitimate music and maximize profits (Edison decided not to record jazz at all during this early period). Their struggle reflected a tension that characterized the early 1900s. Whereas there was little distinction between highbrow and popular art during much of the 1800s, the influx of non-Anglo immigrants and other developments in the U.S. challenged the old-money elite's social

Table 1
Select sources for anti-jazz sentiment in the 1920s

Non-religious Institutions/organizations	Federal Interdepartmental Social Hygiene Board; General Federation of Women's Clubs; Health Commissioner of Milwaukee; National Association of Masters of Dancing; National Federation of Music Clubs; New York State Legislature; Public Welfare Department of Illinois; United States Public Health Service
Trade press	*The Etude*; *The Musical Courier*; *Musical Leader*; *The Musician*; *New Music and Church Review*; *Talking Machine World*
Popular press	*Ladies Home Journal*; *The Literary Digest* (*Reader's Digest*); *New York Herald Tribune*; *New York Times*
Prominent individuals	University of Wisconsin professor; Henry Ford; Thomas A. Edison; Harvard University Professor, Princeton University Professor, Yale University Professor; Mrs. J.P. Morgan; Mrs. Borden Harriman; Mrs. Henry Phipps; Mrs. James Roosevelt; Mrs. E.H. Harriman

Sources: Berger (1947) and Leonard (1962). Most publications listed above have multiple articles on jazz. For example, *The Etude* has 13 articles on jazz from 1923 to 1945.

standing, resulting in the construction of rules to institutionalize the purity of highbrow culture and exclusivity of elite class membership (Beisel, 1990; DiMaggio, 1982). Levine (1988: 216) relays elite goals when quoting a *New York Times* music critic: " 'The way to elevate is to elevate,' to keep the people face to face with the best by eradicating everything less than the best ..." While elites grudgingly tolerated segregated lowbrow art forms, mixing high and low forms was considered sacrilegious. Indeed, as DiMaggio (1982) notes, this tension caused the creation of non-profit arts organizations, established to promote, in part, the separation between high and popular culture.

Although ultimately profitable as a business proposition,[1] early jazz was deemed illegitimate by elites, largely because of its association with African-Americans and illicit activity that supposedly accompanied its performance (Kenney, 1993; Leonard, 1962; Peretti, 1992). Table 1 provides a sample of sources that publicly spoke out against jazz music and jazz dancing (Berger, 1947; Leonard, 1962; Peretti, 1992). Anti-jazz sentiment emanated from governmental agencies, periodicals, Ivy League academics, and representatives of leading businesses. The New York state legislature, for example, passed a bill to regulate jazz (the Cotillo Bill), and members of the business elite banned jazz from their plants (Leonard, 1962). The list of organizations reveals that elites (along with many in the upper-middle class) worked against jazz through music and dancing clubs, women's organizations, and public health agencies (Leonard, 1962). Anti-jazz sentiments in periodicals included both the trade and popular presses. The list of prominent individuals includes Thomas Edison who publicly expressed his disdain of jazz, and the wives of leading industrialists and financiers of the period (Morgan, Harriman, and Phipps)—we assume that the latter represented elite cultural and moral interests (see Gusfield, 1955, 1963). While critical to understanding the movement against jazz, there is not room in Table 1 to include the many religious organizations (e.g.,

[1] Music historian W.H. Kenney notes that the founder and president of Victor considered jazz to be roughly a third of the market during the 1920s (personal correspondence).

Catholic Church, Salvation Army) that also fought vigorously against jazz (Leonard, 1962).

While these actions by elites could be ignored by many record companies, dominant incumbents felt pressure to comply. Not only were they highly visible due to their market presence, but the leaders were strongly affiliated with the American elite class through educational, matrimonial, and financial ties. Eldridge Johnson, founder and president of Victor, was the top financial contributor to the Republican Party in 1928—whose major contributors also included the Mellons, Rockefellers, and Guggenheims (Overacker, 1933). Leon Douglass, Victor's vice president, married into the prominent family that produced Presidents John Adams and John Quincy Adams. Edison, a well-known member of the business elite, was married to Mina Miller, a member of the Daughters of the Revolution (Melosi, 1990). The founders and executives of Columbia Phonograph included influential attorneys, graduates of prestigious universities, and financiers associated with the US Supreme Court and US House of Representatives (Welch et al., 1994; *Who Was Who in America*, 1962).

The identities of the dominant record companies were intimately rooted in the values and agenda of the American elite in a period when elites paid close attention to the relationship between social status and the arts. As a consequence, they were influenced by the pressure to uplift high culture. Accordingly, these companies sought to record high status singers and musicians of European operatic and classical music (like Enrico Caruso) who could demonstrate the companies' commitment with "high-class music" that "appeals to the best class of people" (Kenney, 1999: 51).

The historical record shows that constraints on incumbents diminished during the mid to late 1920s, when jazz's legitimacy began to improve and when incumbents themselves would produce recordings of jazz "orchestras" that could make claims of cultivating and enriching jazz (Phillips and Owens, 2004). Especially notable was the crowning of Paul Whiteman as the "King of Jazz" in 1923 by *Talking Machine World*—the same trade publication that scolded Victor for producing jazz six years earlier—and the *New York Times* (Kenney, 1999; Gracyk, 2000). Whiteman's bands featured classically-trained musicians who were largely "ignorant of black musical styles" but "served as a bridge between the raucous jazz world and that of the small-town brass bands and music teachers" (Peretti, 1997: 34). Other elite organizations and publications gave a guarded acceptance of Whiteman's highly orchestrated form of jazz—including *The Etude* (in 1924), *The Musical Quarterly* (in 1926), and the National Federation of Music Clubs (in 1927) (Berger, 1947). While these parties made great efforts to distinguish between good ("sweet") symphonic jazz and bad ("hot") jazz, we consider their partial acceptance of jazz as indicating its rising legitimacy (see Lopes, 2002).

3. Competency and jazz

As economists and organizational scholars have noted, incumbents are often less competent than challengers in the production of radically innovative products (Arrow, 1974; Henderson, 1993). We extend this logic to the production of jazz recordings. Here, a record company is competent to the extent that it successfully records a jazz tune with minimal effort. Effort here is measured as the number of "takes" (i.e., attempts) required to

record a song successfully. The greater the likelihood of recording successfully in the first take, the more competent the firm.

Part of this argument hinges on evidence that multiple takes incurred a non-trivial cost. First, consider the challenges of recording in the 1920s. The recording studio had to be kept uncomfortably warm to keep the recording wax soft (Kennedy, 1994). Recording also required silence outside the studio as well as inside. Kennedy (1994) notes that one record company had to schedule recordings in between trains passing by because the noise from the train would disrupt the recording process. In addition, the need to balance sound dynamics by varying the proximity of each musician to the recording device impeded coordination. Louis Armstrong, for instance, was said to have had to play in the hallway on some recordings because his sound was too loud for the recording device (Kennedy, 1994). The recollections of a musician in King Oliver's Creole Jazz Band—an influential band—capture such challenges.

> Even though Oliver's play list for the session was polished from countless sets at the Lincoln Gardens, the steamy purgatory [of the recording studio] ... put the band on edge. [Dodds, the drummer]: ''We were all working hard and perspiration as big as a thumb dropped off us.'' (Kennedy, 1994: 62–63)

While recording in general was challenging, jazz was unfamiliar to most high culture-oriented musicians, arrangers, and producers (Slotkin, 1943). Moreover, its improvisational emphasis was illegitimate stylistically (see Dodds and Gara, 1959; Lopes, 2002). As a consequence, dominant record firms were often unclear about how to produce records that explicitly involved this form of jazz (Leonard, 1962). Slotkin (1943: 573) notes the limited experience with ''hot'' jazz:

> ...hot jazz has the following characteristics: (1) Negro musicians employ their instruments differently from white musicians trained in the orthodox style. (a) They use their own technique in playing, and particularly as a result of the use of vibratos, glissandos, and such mechanical tone modifiers as mutes and plungers, achieve new tonal effects with their instruments. Consequently when European musicians first heard jazz music, says Jim Europe [an African-American jazz composer, arranger, and band leader], they ''felt sure that my band had used special instruments. Indeed, some of them, after attending one of my rehearsals, did not believe what I had said until after they had examined the instruments used by my men.''

We argue that due to limited experience with and exposure to jazz music in its radical form, dominant incumbents required more takes to produce African-American groups than white groups. At the same time, these dominant firms were more likely to produce jazz ''orchestras'' than other jazz acts in the first take—reflecting their experience and expertise in recording symphonic music.

Hypothesis 1. The more dominant a record company, the less likely it will record an African-American group in the first take.

Hypothesis 2. The more dominant a record company, the more likely it will record a group identified as an orchestra in the first take.

Our model also tests the alternative that dominant incumbents relied on multiple takes because of extensive resources (e.g., recording until perfection is achieved). If so, one would expect that jazz orchestras would be less likely to have a first-take recording than other jazz groups (contrary to Hypothesis 2).

4. Data and methods

4.1. Data sources

Our data on the recording industry come from the *Directory of American Disc Record Brands and Manufacturers, 1891–1943* (Sutton, 1994). It includes every commercial and semi-private disc record brand manufacturer. Moreover, it provides descriptions of each firm that allow us to follow any changes of corporate ownership. This source yielded 73 record companies over 405 firm-years, with only one African-American-owned company—Black Swan (1921–1924). Our data on recordings are drawn from the two-volume discography, *Jazz Recordings, 1897 to 1943* (Rust, 1969). It lists the recording date, song title, recording label, catalogue number, group name (and pseudonym), and city for each recording, along with a listing of musicians and their corresponding instruments.

We bound our sample in two ways. First, we include only those recordings done in the Midwest (e.g., Chicago, Minneapolis, St. Louis, Cincinnati, Kansas City) and exclude recordings from cities or regions outside of the Midwest (e.g., New York City). There are two potential drawbacks to this: we are neglecting important recordings made elsewhere and are not capturing recordings by Midwest musicians made in non-Midwest cities. Regarding the first drawback, jazz historians and musicologists note that the Midwest was the region from which recorded jazz emerged (e.g., Kenney, 1993). Also, jazz improvisation—"hot" jazz—has been singly identified as initiated by Midwest musicians before diffusing to other regions of the country (Kenney, 1993; Peretti, 1992). Regarding the second drawback, our examination of Rust's (1969) discography suggests that musicians who resided in the Midwest typically made recordings in Midwest studios. On average, over 91% of each group's recordings took place in the Midwest. Moreover, 85% of the groups never recorded outside of the Midwest. Finally, there were very few occurrences of musicians who actively recorded across different regions in the 1920s.

The second way in which we bound our data is by ending our observation period at 1929. The primary justification for doing so is the onset of the Great Depression, which nearly decimated the record industry. Indeed, Victor and Columbia survived only by merging with radio interests to form what would be known as RCA and CBS, respectively (Leonard, 1962; Sutton, 1994). The secondary justification is that the late 1920s were characterized by a migration of jazz music from the Chicago and the Midwest—its commercial birthplace—to New York and the Northeast. By the 1930s New York became the new center of jazz music with prominent musicians moving to Harlem and other areas of the New York region. Louis Armstrong, for instance, traveled from the Midwest to record in New York for the first time in 1929 (Rust, 1969). After bounding the sample, our recording data encompass 2656 recordings by 497 groups.

4.2. Dependent variable

Many of the recordings within Rust (1969) provide the number of takes required for a successful recording as part of the record's matrix number (used for cataloguing). The format varies by firm, but it is typically represented by either a number or a letter (e.g., "A" refers to the first take, "B" refers to the second). The number of takes is an important measure of competence, as a better production process can produce a successful recording with fewer takes (ceteris paribus). Recordings that were made successfully in the first take are coded "1" ("0" otherwise). Of the 2656 recordings, 41 had missing information on whether the recording was made on the first take.

4.3. Independent variables

4.3.1. Market dominance of firms

One way to determine market dominance is by sales data, with relatively high sales indicating dominance. However, sales data are simply unavailable for most firms in this period. Moreover, musicologists and historians note that such data were often misreported so record companies could make smaller royalty payments to artists (Kofsky, 1998; Schaap, 2001). Furthermore, dominant firms had an incentive to underreport sales in order to downplay their role in popularizing jazz, and they evidently did so (Kenney, 1999). Therefore, we gauge market dominance via a measure of ecological strength, which captures a firm's overall likelihood of remaining in the record production market (see Phillips, 2001, 2002). Ecologically strong firms should have the resources and organizational structure to produce and market recordings that are well received by the public and other musicians.

We use the hazard rate of market exit based on all 73 firms existing from 1891 (when the industry emerged) to 1929 (when our study ends), thereby gauging an individual firm's ecological strength. Using the Sutton (1994) data, we coded for each firm the dates of market entry and exit, location and number of offices, location and number of studios, location and number of pressing plants, number of foreign affiliates, number of labels produced, population density, label density, whether the record company had a parent firm, the number of years of the founder's industry experience, and whether the record company used vertical, horizontal, or universal groove modulation technology—and from these, we constructed a single, composite measure (i.e., a hazard rate). After obtaining the predicted hazard rate (i.e., the likelihood of a given firm remaining in the market), we transformed the rate (one minus the predicted probability of exit), yielding a variable we label "ecological strength"—which varies from 0 to 1, with ecologically stronger firms (e.g., Columbia, Victor) assigned to higher values. Of the 2656 recordings coded from Sutton (1994), 62 have missing data for the record producer, resulting in an N of 2594. Because the distribution of the variable is skewed, we calculated the logged ecological strength.

4.3.2. Race of jazz groups

For each of the 497 groups, we coded whether any of its members was non-white—based on information gleaned from discography data, pictorials of jazz musicians, and jazz histories that focus explicitly on the race of musicians (Driggs and Lewine, 1996; Ward and

Burns, 2000). In almost every case, groups categorized as non-white have African-American members. However, the non-white distinction refers to Creole musicians as well, who were occasionally categorized as a distinct group. We found that recording groups were highly segregated, reflecting the society of the 1920s; all but 3 of the groups that we could confidently identify were either all white or all African-American and Creole. The result of this coding was a dummy variable for whether the group had any non-white members.

We could not determine race for 299 recordings. To avoid losing these cases, we included an additional dummy variable denoting when the race of group members was unknown. This allows us to retain observations for which we know nothing of the demography of the recording group. We note one caveat: our variable for race does not speak to the ethnicity of the musicians. While there is qualitative evidence of important differences between non-Anglo immigrants and Anglo Protestants in music (Kenney, 1993, 1999), we were not able to delineate systematically the background of each musician at that level of detail.

4.3.3. "Orchestra" jazz groups

For each group, we coded a dummy variable for whether the word "orchestra" was used in its name. This coding acknowledges the existence of the society dance orchestras that performed symphonic versions of jazz songs that were purportedly palatable (and legitimate) for middle and upper class audiences. This indicator is conservative to the extent that some groups performed legitimate forms of jazz but did not have the word "orchestra" in their name. Nevertheless, 31% (917) of recordings in our sample were made by "orchestras."

4.4. Control variables

Other factors than those listed above may have decreased (or increased) the likelihood of a successful recording in the first take. As a result, we control for the familiarity of recorded songs (i.e., covers), the composition of the jazz group, firm attributes, and time trends.

4.4.1. "Cover" recordings

We expect that new recordings of previously rerecorded songs (i.e., "covers") will be relatively easy to record given their familiarity. To code a dummy variable (with "1" indicating a cover), we track the number of previous recordings made of a given song title.

4.4.2. Group composition

The composition of a group could easily shape the ease of recording. For example, groups with many, rather than few, members could increase the likelihood of mistakes. As a control for group size, we count the number of instruments listed in Rust (1969) for each recording, as such information is more readily and systematically available than the actual number of musicians. Likewise, groups with leaders may have preplanned coordination that facilitated recording success. We control for this with a dummy variable when the Rust discography indicates whether there was a designated "leader" or "director" for a particular recording. Of course, experienced groups may be more likely to have successful

recordings (i.e., one-take) than novices. We thus control for ''recording experience'' (i.e., the number of years since the group's first recording).

Groups with unusual compositions could raise difficulties for the recording process, thereby reducing the likelihood of a single-take. During our time frame such unusual features included unique combinations of instruments, as well as the presence of vocalists and female musicians. Regarding instrumentation, we constructed a recording-by-instrument matrix for each year. We used this matrix to calculate a Euclidean distance measure for each recording and to index its average distance from all other recordings in the same year. The greater the value, the more unique the combination of instruments. Regarding vocalists, there was often a fine line that separated jazz from other forms, such as blues, in the 1920s. Whereas songs with vocals maybe be either jazz or blues, instrumentals are more clearly distinguishable as jazz (Rust, 1969). In our study, if a song featured vocals a dummy variable was coded as 1. Finally, to determine whether a group had any female members, we used gender-specific name identifiers. These names were double-checked using pictorials of jazz musicians (Driggs and Lewine, 1996; Ward and Burns, 2000). The result of this coding is a dummy variable for whether the group had any women as members—groups rarely involved more than one female member. We could not determine gender in 105 of the recordings. To avoid losing these cases, we also included an additional dummy variable denoting that the gender of group members was unknown.

4.4.3. Firm attributes

We expect that firms producing a higher proportion of jazz records should have a greater commitment to jazz and more competence in recording jazz. We control for this with a variable that taps each record company's share of records in the jazz market from 1920 to 1929. This measure is distinct from the ecological strength variable (the correlation between the two variables is only 0.14), as the latter is based on a firm's structure, age, population characteristics, and founder experience.

It is possible that non-dominant firms, rather than being unconstrained by elites, are advantaged because of their proximity to local artists. We control for whether a firm is recording in the city of its headquarters. This variable also helps us to take into account differences in the quality of the recording conditions that a firm may experience when not recording at their primary location. Using a similar logic, we also included a control variable for whether a particular recording was made in Chicago, the primary location for jazz in our sample.

4.4.4. Time trends

In an effort to capture heterogeneity due to time trends (such as changes in recording technology), we coded dummy variables for pre-1922 and each year from 1922 to 1929.

5. Results

Table 2 provides a logistic regression estimating the likelihood of securing an acceptable recording in the first take. While most control variables lack significance, those for group size, instrument combination, and jazz market share give evidence of the dependent

Table 2
Logistic regression of the likelihood of successfully recording in the first take: Midwest jazz recordings, 1920 to 1929

Group size	−0.046* (0.019)
Instrument combination unique	−0.004* (0.002)
Has vocals	−0.125 (0.108)
Has director or leader	0.210 (0.156)
Recording is a cover	−0.038 (0.135)
Has woman member	0.133 (0.116)
Gender unknown	0.243 (0.229)
Non-white group	0.126 (0.150)
Race unknown	−0.014 (0.158)
Recording experience	0.036 (0.029)
Has a leader/director	0.210 (0.156)
Called an ''orchestra''	−0.421** (0.145)
Share of jazz produced	1.121* (0.480)
Recording in city of HQ	−0.683** (0.135)
Recorded in Chicago	−0.561** (0.120)
Log ecological strength	3.880** (1.407)
Non-white* log ecological strength	−3.422* (1.407)
Orchestra* log ecological strength	1.616* (0.768)
Year: 1922	−3.857** (1.301)
Year: 1923	−1.951 (1.181)
Year: 1924	−2.452* (1.187)
Year: 1925	−1.123 (1.184)
Year: 1926	−1.541 (1.183)
Year: 1927	−2.470* (1.187)
Year: 1928	−2.449* (1.182)
Year: 1929	−3.000* (1.177)
Constant	2.716* (1.255)
N	2594
Log-Likelihood (d.f.)	−1447.673 (25)

Robust standard errors (in parentheses) are presented.
* $P < 0.05$.
** $P < 0.01$.

variable's validity: large groups (rather than small groups) and groups with unique (rather than typical) combinations of instruments are less likely to record a song in a single take; record companies that produce a relatively high proportion of jazz records are more likely to record a song in a single take, thereby showing that experience in recording jazz yields competency.

Among the controls, the most surprising outcomes are that recordings made in Chicago and in the same city as the firm's headquarters are less likely to be done in a single take than recordings made elsewhere. The ''Chicago effect'' is partly due to Brunswick—one of the dominant firms during this period—having its main offices there. It may also be the case that firms recording close to home (as opposed to far away) experiment in the selection of groups and songs to record and, in turn, require a greater number of takes. As evidence of this, *t*-tests reveal that song titles that have never been recorded before are more likely to be done by firms recording in their headquarters ($t = 2.25$), while groups recorded in the

headquarters of the recording company have less recording experience on average ($t = 7.60$).

The yearly dummy variables are important in this model because in 1925 recording studios began electrical recording (Kenney, 1999). With pre-1922 as the omitted period, we see that the change in technology did not affect the probability of recording in the first take. Indeed, there is no clear time trend in the year dummy variables.

Our hypotheses are tested with the two interaction effects. Hypothesis 1, that the more dominant a record company, the less likely it would record an African-American group in the first take, is supported. The interaction term for non-white and ecological strength is negative and significant. Hypothesis 2 is also supported with a positive and significant interaction term for orchestra and ecological strength. Whereas ''orchestras'' were typically less likely to be recorded in the first take, ecologically strong firms had greater success in efficiently recording them than did less dominant firms. In sum, when controlling for a range of factors, we find support for the argument that dominant firms were less competent than other firms in recording the radical jazz associated with African-American but more competent in recording symphonic jazz.

6. Conclusions

Early jazz threatened the identity of firms that dominated the recording industry during a period in which the definition of high culture was being transformed (DiMaggio, 1982; Levine, 1988, 1989). We emphasize two factors that caused tension for the dominant incumbents seeking to commercialize a popular musical form without angering elites with whom they were associated. First, African-American musicians introduced and were associated with the radical innovation of jazz, lending to the new genre's illegitimacy. Second, jazz was improvisational, making it stylistically radical for firms accustomed to producing operatic or symphonic music. We find evidence of market leaders being publicly accosted when initially recording jazz musicians. The firms responded by recording hybrids of ''hot'' jazz and legitimate music, finding reduced resistance when recording all-white groups and groups identified as orchestras (Phillips and Owens, 2004). Using data from jazz discographies and other sources we demonstrate in the present paper that dominant incumbents were relatively less competent when recording African-American musicians and relatively more competent when recording jazz ''orchestras.'' Elsewhere, we also demonstrate that these incumbents, when compared to non-dominant competitors, were slow to record African-American jazz musicians after the initial (and short-lived) attempts in 1917, and they were quick to record jazz orchestras. Continuing the comparison, dominant incumbents had less market success with African-American recordings and more success when recording jazz orchestras (Phillips and Owens, 2004).

In many ways our analyses reveal a set of outcomes that are familiar to organizational scholars who examine the actions of incumbents in the face of a new radical innovation. However, our study differs in two ways from the standard rendition. First, dominant incumbents were the first movers, not new entrants or marginalized competitors. However, these same incumbents felt substantial pressure to disengage from actions deemed illegitimate by cultural and business elites. At the same time that leaders of the dominant

incumbent firms were associated with this elite class, they also recognized jazz's commercial potential. As a result incumbents commercialized the innovation, then backed away, ceding to an unanticipated backlash that emphasized the suppression of low culture and separation between high and low culture (Phillips and Owens, 2004). Second, dominant incumbents engaged in the legitimation of jazz by placing an emphasis on symphonic jazz ''orchestras.'' Entering (or re-entering) the market through jazz ''orchestras'' solved two problems for the incumbents. On the one hand, these firms could increase their sales of popular music without offending the arbiters of culture. On the other hand, they could perform music that was consistent with their past efforts. This consistency would result in improved production competency and market success.

We consider the primary contribution of this work to be on innovation within culture industries, where innovations are thought to vary, in part, by their level of legitimacy. Our findings give reason to integrate the process by which illegitimate culture becomes popular culture into core treatments of popularization—where the latter's focus is often on the transformation of highbrow culture to popular culture. In this way, we look to Lopes' (2002) emphasis on the objective of formally trained musicians to professionalize jazz. To this we contribute the role of the corporate actors in the jazz art world—namely, record companies. By examining the emergence of the new genre and linking it to the recordings and firms responsible for the recordings, we find that dominant firms participated in a redefinition of jazz that would ultimately result in its legitimation.

In sum, our paper and larger project represent a call to consider the cultural sociology of innovations and, in turn, better understand the role of organizations and markets in determining product homogeneity. Our findings suggest that there are conditions under which a dominant incumbent's role identity can retard its ability to respond to an innovation and cause it to underperform when producing the new product. Not only should this inform our understanding of the emergence of jazz, but it provide a lens for understanding the commercialization of innovations in markets for music, the arts, and technology.

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