

**FORGING CONSENSUS: AN INTEGRATED VIEW OF HOW CATEGORIES SHAPE THE PERCEPTION
OF ORGANIZATIONAL IDENTITY**

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ABSTRACT

This paper integrates two approaches – the “categorization as a theoretical tool” and the “typicality judgment” – which both emphasize audience confusion as a mechanism through which category spanners become devalued or ignored. However, the two perspectives differ in their specification of why confusion will likely lead to devaluation or ignoring. In this study, we consider the interplay of these two approaches in the setting of corporate law market. We find that spanning product categories has a U-shaped relationship with perceived clarity of law firm identity. While none of the two perspectives alone can explain our findings, they can do so together.

INTRODUCTION

It is by now widely accepted that categories – whether they be the internal mental representations that individuals have of the world or whether they manifest as formal, external classification systems – profoundly shape how customers, employees and investors, evaluate products, firms and people in market settings (for reviews, see Hannan 2010; Negro et al., 2010; Durand and Paolella 2013; Vergne and Wry 2014). Research in this vein builds from the premise that in order to evaluate an offering, individuals must first be able to identify or make sense of it; they must be able answer the basic question of “what is that?” This necessarily involves categorization, the process by which individuals observe features of an entity, note the extent to which those features fit with their conceptual representation of the world, and finally, assign entities to categories on that basis (Murphy, 2004). The ability to form expectations about an entity’s other unobservable features, to anticipate their likely actions, and to orient one’s own behavior accordingly all follow from categorization, making categorization a critical precursor to exchange in markets.

Given the important processes which categorization enables, it is perhaps not surprising that prior work has shown that individuals often ignore or devalue entities that they find difficult to categorize (Zuckerman 1999; Hsu 2006; Hannan et al., 2007; Leung and Sharkey, 2014). That is, when audiences are uncertain about how to place an entity within their mental representation of the market, they are likely to avoid it or view it unfavorably. Despite agreement that confusion is an important source of the penalty that accrues to those who traverse categorical boundaries, however, scholars have tended to emphasize different reasons why confusion is problematic and different conditions under which confusion may lead to devaluation or ignoring.

One perspective, which we refer to as the “categorization as a theoretical tool” approach (Zuckerman, this volume), argues that while confusion associated with category-spanning *can*

lead to ignoring or devaluation, it is not inherently problematic. Rather, according to this approach (based on an audience's theory of value and the causal model view of categories), category-spanning tends to elicit punishment from audiences only when it hampers the assessment of other valued qualities, such as competence or commitment. Consistent with this argument, Zuckerman (1999) emphasized the "social confusion" that securities analysts experienced when they encountered firms whose industry-based identities did not map well with the division of labor among analysts, showing how this mismatch led to devaluation because the frame of reference for evaluating such firms was unclear. Phillips, Turco and Zuckerman's (2013) examination of diversification in the legal services market more directly showed that audience confusion is not necessarily problematic. The results of that study indicated that while clients viewed law firms that practiced both corporate and personal injury law as less committed to their corporate clients, they did not perceive firms that mixed corporate law and family law more negatively even though they found them puzzling (p.1039).

More generally, this viewpoint takes the perspective that categories and classification systems typically exist to help consumers discern between offerings on some dimension(s) that they prize. That is, categories tend to correspond to or reflect an audience's "theory of value" and only persist because they are reasonably successful at doing so (Zuckerman and Rao, 2004). Given the (crudely) functional nature of categories, it follows that those who span categories would be devalued relative to those whose identities more clearly fit. However, to the extent that superior ways of discerning value may exist in some settings, traversing categorical boundaries should not be problematic.

A second approach, embodied in the work of Hannan and colleagues (Hannan, 2010; Hannan et al., 2007; Negro et al., 2010; Kovács and Hannan, 2015), takes a more cognitively-driven perspective on the sources and consequences of audience confusion associated with

spanning categories. We refer to this line of work as the “typicality judgment” approach (building upon prototype, exemplar and schema-based views of categorization). In line with research in cognitive psychology (Rosch and Mervis, 1975; Rosch, 1973), this approach treats individuals’ conceptual representations of the world as including a set of entities that are viewed as the most central or representative of a category (e.g. prototypes), and emphasizes that people recognize and respond to variation in the typicality of different objects as members of a category. Atypical members tend to elicit more confusion and inconsistency in categorization (McCloskey and Glucksberg, 1978). Thus, according to this perspective, confusion arises when an evaluator perceives that an offering is a poor fit with his or her mental representation of a category. This mismatch causes difficulty in knowing what to expect, which leads to ignoring or devaluation (Hannan et al., 2007). Consistent with these arguments, Hsu’s (2006) research in the firm industry shows that movie critics exhibit less consensus – an indicator of confusion – in how to classify films that span multiple genres, and this is problematic because lowered consensus reduces appeal. Likewise, Leung and Sharkey (2014) show that prospective borrowers on a peer-to-peer lending site are viewed as less attractive loan recipients when they belong to groups that span categories; they conclude (but do not show directly) that this is more likely to be due to a cognitive-confusion mechanism, given that the categories in this setting seem to be mere affiliation groups and are not associated with any strong normative beliefs making combinations taboo.

In this paper, we examine audience confusion with respect to a firm’s identity in a distinctive setting that allows us to consider the interplay of these two approaches. Our empirical setting, the market for corporate legal services in three locations (London, New-York City and Paris), is characterized by practice areas (i.e., product categories) such as “intellectual property”, “mergers and acquisitions” and “bankruptcy,” that exist within firms. Law firms tend to be either

boutique, specializing in a single practice area or full-service, providing expertise across a wide range of practice areas (Dezalay, 1992; Galanter and Palay, 1994). These two models shape how corporate lawyers think about strategy and respond to competitive forces (Mayson, 2010), and are widely understood among clients (Second Annual IICJ Global In-house Counsel Survey Report 2010, 2010; Dillon, 1989). In this setting, boutique firms can be thought of as the prototypical providers of legal services in their respective areas, whereas full-service firms span categories.

Paolella and Durand (2016) show that firms in this context are rated as more competent to the extent that they span more categories. This finding, which runs counter to much prior empirical work on the negative effects of category spanning, underscores the important role of an audience's needs and goals in determining whether category-spanning is viewed favorably. In this case, full-service firms (i.e., category spanners) were seen as attractive in part because clients had a complex set of needs that often traversed categorical boundaries (e.g., a firm that is doing an acquisition needs someone who is familiar with Corporate-M&A, Tax, and Employment laws).

Despite the fact that full-service firms were evaluated more favorably, it remains an open question as to whether these firms may nonetheless have elicited confusion with respect to their identities. That is, even if full-service firms were viewed as more attractive upon being evaluated, did relevant audiences have a difficult time apprehending these firms' identities in the first place? Do such firms face challenges in gaining recognition in the marketplace? We explore this question by examining two indicators of whether a firm is perceived clearly and consistently in the market. First, we study the level of consensus on a firm's identity as perceived by multiple evaluators. Second, we analyze changes over time in how the same evaluator perceives the same firm. We find that, in this context, spanning product categories has a U-shaped relationship with perceived clarity of identity, as measured by the agreement on identity as perceived by multiple

evaluators. That is, evaluators tend to more often agree in their categorization of law firms that span either a few categories or many categories, but they diverge in their views of those that span a middling number. Likewise, over time evaluators are more likely to change their perceptions of firms with a moderate number of practice areas, relative to their views of boutique or full-service firms.

We assess the fit between these results and the both “categorization as a theoretical tool” and “typicality judgment” approaches to studying the effects of confusion about an actor’s identity in markets. Our examination leads us to conclude that the two approaches are complementary. Prior work in this area indicates that clients’ “theory of value” in the legal market centers around a belief that diversified law firms are the most equipped to handle complex cases (Paolella and Durand 2016). Accordingly, clients scan the market seeking these full-service firms. Given prospective clients’ orientations, the “categorization as a theoretical tool” approach would predict that such firms would not elicit confusion even though they span categorical boundaries. This is precisely what we find. Furthermore, from this perspective, it makes sense that firms spanning a middling number of categories might encounter greater challenges to being recognized, which is also confirmed in our results. However, from this theoretical perspective, it is not evident why we find that audiences nonetheless see boutique firms quite clearly. The “typicality judgment” approach, on the other hand, correctly predicts that audiences will easily recognize boutique firms, but has difficulty explaining their lack of confusion with respect to full-service firms (i.e., category spanners). We synthesize aspects of both approaches to explain our results.

THEORY AND HYPOTHESES

The concept of organizational identity has a long history in organizational theory. In an early formulation, Albert and Whetten (1985) defined organizational identity as stemming from features that are central, enduring and distinctive. Initially, researchers tended to emphasize the ways in which identity influenced the decisions of organizational members, such as employees. This occurs because, as Golden-Biddle and Rao (1997) noted, identity provides organizational members with a frame through which possible courses of action may be evaluated, thus guiding the choice of behaviors toward those that are identity-consistent (Glynn, 2000).

In recent years, scholars have emphasized the ways in which an organization's identity also operates as a constraint that flows through external audiences. In an influential paper, Hsu and Hannan (2005) conceptualized organizational identity as a set of social codes or rules that dictate what features an organization is expected to possess and what the organization is expected to do. Importantly, they emphasized that identity inheres in the social perception of an organization's attributes, rather than in the attributes themselves; thus, whether an organization is recognized as, for example, a school, depends less on the particular features of the organization but more on whether some relevant audience recognizes the organization as such. Building on this perspective, recent work has shown that a firm's identity serves as a lens through which external parties interpret its performance (Smith, 2011; Sharkey, 2014).

As emphasized by Rao, Monin and Durand (2005: 970), "A canonical axiom in the social sciences is that categories establish social and symbolic boundaries, and thereby constitute the identity of actors." Thus, a firm's identity can be thought of being determined by the set of social categories to which it is perceived as belonging. Although a wide variety of social categories related to a firm's size, its geographic location or its orientation toward employees or the environment may shape a firm's identity, perhaps the most fundamental aspect of identity for

which most firms wish to be recognized has to do with the type of business they operate. For example, a retailer needs to be perceived as a place that sells things in order for customers to even consider it for their purchasing needs. Firms that do not make this facet of their identity clear risk being ignored or devalued (Zuckerman, 1999). Thus, the dictum that organizations must have an identity that clearly conforms to an audience's classification system has largely been interpreted as a "categorical imperative" that firms (and their products) should conform to existing product-based industrial categories. More specifically, firms should avoid engaging in multiple industries and should expect that "hybrid" products will not fare well.

The typicality judgement approach

There are a variety of explanations for why entities that span categories might face challenges in obtaining recognition or standing in a market. One prominent approach to understanding the mechanism(s) underlying this phenomenon has involved building on work in cognitive psychology that treats categories as consisting of a set of entities that are considered to be "ideal" members of the category because of the particular combination of features that they exhibit (e.g., prototypes) (Rosch and Mervis, 1975; Rosch, 1973). According to this view, categories have fuzzy boundaries and objects that lie far from a category's central tendency, sharing few of its features, are viewed as atypical; as a result, evaluators become confused, which in experimental conditions manifests in inconsistent categorization of the same object both across evaluators and over time by the same evaluator (McCloskey and Glucksberg, 1978). As noted earlier, a variety of more macro-level work in organizational theory is consistent with this perspective, although direct and definitive empirical evidence of the confusion mechanism has been rare.

Yet, while work in cognitive psychology has been helpful in understanding these typicality effects through which devaluation occurs, cognitive psychologists have ordinarily

taken categories and their associated prototypes as given; their disciplinary project generally does not encompass explaining the historically contingent and socially constructed nature of classification systems. The sense in which this is problematic for organization theorists can be seen by examining a few examples that raise the fundamental question of how to define “category-spanning” and whom should be designated a spanner. Most business schools, for example, include separate departments for accounting, economics, finance and organizational behavior faculty – and yet prospective students do not seem to have any trouble recognizing these institutions as business schools. Likewise, highly diversified companies such as GE produce an array of products spanning industrial categories, ranging from heating and cooling systems, airplane engines, to – at one time – broadcasting. The firm is often described as a conglomerate, a term which is so institutionalized as to be a formal designation within Standard and Poor’s industry classification system. Finally, at the product level, inventions such as the iPhone include features of both a camera and a phone, and the category “romantic-comedy” is widely understood as combining elements of romance films and comedies. On the surface, it would seem foolish to argue that relevant audiences have difficulties making sense of what these firms are and their products do and who they are.

Are these firms and products truly category spanners? It depends on the vantage point from which such entities are viewed. From one perspective, the answer is yes. In assembling scholars from a variety of substantive areas, a business school transgresses the disciplinary boundaries of economics, finance and organizational behavior. From another vantage point, however, an academic institution with scholars from finance, economics and organizational behavior is not a spanner at all. Instead, in displaying the features of a prototypical “business school” (i.e., having scholars from organizational behavior finance and economics), the institution is positioning itself with a clear identity as a business school, in contrast to a “law

school” or “medical school.” Likewise, GE can be viewed as the prototypical conglomerate, or it can be viewed as a category-spanner that is extremely atypical of any of the component industries in which it operates. Finally, all of these examples highlight how the perspective on spanning can change over time as new organizational forms emerge and entities that once might be seen as category-spanners transition to being seen as members of newly taken-for-granted categories.

The categorization as a theoretical tool approach

The examples above suggest that while category spanning may be problematic *per se* in that it leads to greater cognitive confusion, this is of course contingent upon the frame of reference with which an audience approaches an object or organization. That is, in some sense, we can think of all objects as spanning categories in that they consist of a set of features that are themselves concepts. Yet, of course, we do not actually view most objects as unusual in this way. What seems most important, then, is not the set of features an object has *per se*, but instead whether those features have been schematized such that together they are viewed as coherent. Indeed, to address inadequacy of the similarity-based approaches, authors like Murphy and Medin (1985) propose that concepts are intertwined with our theoretical knowledge of how the world works, and that concept-representations are, at least in part, determined by that knowledge. For these authors, the structure and coherence of a conceptual representation comes both from within the concept itself, in the form features and the relations (causal, thematic, etc.) between them, and from outside the concept, in the general world knowledge within which the concept is embedded. Moreover, coherence also relates to what is known as the “causal knowledge” view of categories (Rehder, 2003). According to this approach, categories do not reduce to a set of prototypes or other forms of central tendencies that embody the ideal member, but they also include knowledge of causal relations between features as well as relations between categories (for a review, see Durand and Paoletta (2013)).

Thus, these perspectives raise the question of how categories come to gain coherence and/or how causal knowledge about a category and relations between categories are formed. In our view, the best answer to these questions can be found by taking as a starting point the perspective that audiences have some lay theory of value (Shiller, 1990; Zuckerman, 1999: 1431) and that they create classification systems and use the categories within them to easily determine whether a given entity conforms to their theory of value. Paoella and Durand (2016: 330-331) provide an explicit definition of this term: “By theory of value, we refer to audiences’ identification of issues and solutions, and their ascription to solution providers of a value order.” Thus, a theory of value is a guiding framework an audience uses to first make sense of an entity and second evaluate it.

It follows, to the extent that evaluators can more easily assess offerings that conform to their theory of value, that we should observe that firms in turn take steps to ensure their identities conform to the classificatory schema used by relevant audiences, such as evaluators and investors. Strategies that they use to do so include adopting features consistent with the prototypical category member (Durand and Kremp, 2016), divesting lines of business that are perceived to be inconsistent with their core identity (Zuckerman, 2000), and engaging in strategic labeling and other tactics to make clear the category to which they belong (Chen et al., 2015; Granqvist et al., 2013). As noted earlier, however, novel forms will emerge and not all firms will undertake such conforming activity. To the extent that some entities that defy the existing classificatory structure survive and prosper, we suggest that they will eventually be theorized, defined by Strang and Meyer (1993: 492) as “the development and specification of abstract categories and the formulation of patterned relations such as chains of cause and effect.” When actors such as the media, analysts and category-spanners themselves theorize a new form, they create a publicly available rationale for why various features should go together and in doing so

widen the “zone of acceptance” around novel entities, practices or categories (Rao et al., 2005: 816). We suggest that this process of theorizing prevalent or prominent entities such that they become seen as natural and appropriate is the very reason that some combinations of features come to be considered to be distinct social categories. Thus, theorization enables the rise of new categories such as “smartphone,” “romantic comedy” or “conglomerate” – each with their own prototypical member(s) and causal stories governing the relationship between the categories that comprised them.

We now turn to discuss these issues in light of the setting at hand. As we noted earlier, in the market for corporate legal services, two organizational models are widely evident: full-service law firms, which aim to provide their clients with a comprehensive offering by employing lawyers who specialize in a range of different practice areas, and boutiques, which employ experts in a single practice area. Evaluators view full-service law firms as the most attractive type of firm; Paoletta and Durand (2016) find a positive and linear relationship between category spanning and evaluator ratings of firms. Given clients’ positive orientation toward such firms, we suspect that full-service firms will be easily recognized and will not elicit confusion among clients and industry experts, contra the typical effects of category spanning. At the same time, we argue based on prototype theories that boutique firms will be easily recognized because they are consistent with clients’ mental models regarding categories of law (i.e., their awareness of distinct practice areas). Finally, those with a middling number of practice areas will be perceived as having relatively unclear identities, because they are both far from the most valorized organizational model in law (i.e., the full-service firm) and because they are atypical relative to the boutique firms that embody clients’ understanding of categories of law. This should manifest itself in two ways: greater disagreement across evaluators and increased inconsistency in how an evaluator perceives the firm over time. Thus, we propose the following hypotheses:

Hypothesis 1. There will be a U-shaped relationship between the number of practice areas in which a firm is recognized and the consensus across evaluators on the firm's identity.

Hypothesis 2. There will be an inverted U-shaped relationship between the number of practice areas in which a firm is recognized and the likelihood of an evaluator changing her perception of the firm's identity.

In summary, we view the theory of value approach and typicality judgment approach as complementary in this case.

EMPIRICAL SETTING: THE INTERNATIONAL CORPORATE LAW MARKET

Our empirical setting is the corporate law market, where organizational forms range on a continuum from specialization – great depth in one practice area – to full diversification – breadth by offering a full-package of practice areas (Heinz et al., 2001; Mayson, 2010). A small boutique adopts a services focus and chooses to specialize only in one area of law. On the other extremity, a full service firm provides a wide range of services in multiple areas of law. The law corporate market is thus molded by categories used by clients to navigate and select the service wanted. Our exploratory interviews with general counsels, lawyers, guides' editors and legal experts confirmed these two ideal-types:

There are firms that are only intellectual property, patent litigation firms, there are a few...but those are boutiques. They're small, they're specialized and they're small and specialized in part because those partners in those firms are in niche areas and they're niche industries and they can make a lot of money without being part of a larger infrastructure with large amount of overhead. (Interview with a former partner, US law firm, New York City Office).

For my area, I do prefer full-service law firms. And I think the reason is again a lot of the issues that I deal with have global aspects, have transactions that involve multiple areas. There's a virtue in one-stop shopping, but again for the areas that I

consider less critical, I might be more willing to look at a boutique that's cheaper and maybe narrower, but still high quality. (Interview with a General Counsel in *Fortune 500* company, New York City)

We collected original data on corporate legal services market in three professional legal directories (*The Chambers and Partners*, *The Legal 500*, and *PLC Whichlawyer*) that cover law firms both by categories – i.e. by practice areas – and by location. These directories are the most widespread over the business legal market. Based on extensive independent research, they track the most important trends in the legal profession and provide coverage of corporate law firms operating in various practice areas. These guides reflect the market's opinions by collecting informed feedback from lawyers and clients (Second Annual IICJ Global In-house Counsel Survey Report 2010: 21; Coates et al., 2011). They do not directly assess legal services; but they conduct interviews and their publications reflect the opinions of clients. Thus this coverage provides a snapshot of activities and position of law firms in the market for each year of observation. Law firms are covered in each practice-area on the basis of their “technical legal ability, professional conduct, client service, commercial astuteness, diligence, commitment, and other qualities most valued by the client” (*Chambers and Partners Editorial*). A coverage in a given practice area relates to the firm's department in this specific practice area, not to the firm as a whole. When a firm has several departments specializing in different areas of law, some of its departments may be covered and some others not.

These major directories share exactly the same definition for each category and adopt the same standards for classification, which makes possible comparisons. The legal directories have the same definition for every practice area of law and adopt a similar research methodology to cover the leading law firms across the three jurisdictions, which makes possible comparisons. They judge effectiveness and capability of each department first by assessing the actual work

done – deals, cases, reported contentious issues – via law firms’ submissions and second by interviews with those active in the market – mainly clients, in-house lawyers and peers. At the beginning of each research cycle, the guides’ research teams invite firms to send submissions about their important deals of the year, with the main focus on the track record of the firm and its teams of lawyers in the firm’s particular practice area. Second, drawing from client referees provided by law firms and from their regular contacts with in-house lawyers, press releases, or past cases, the guides’ research teams interview many clients of the law firms, not just those mentioned in firms’ submissions, in an effort to be as thorough as possible. These interviews provide clients with the opportunity to comment on the firms they deal with on a regular basis. Interviewers ask in-house legal departments what type of work is outsourced, which outside lawyers are instructed, and the quality of the legal services provided by outside firms. In the third and final step, the guides’ research teams interview leading lawyers regarding their peers to gather their views on the market and their competitors. Overall, they conduct thousands of interviews with clients, market commentators, lawyers, and legal actors to reflect opinions over the market:

As I told you, the illustration that I used to give was that *Legal 500* was a picture of the market at the given moment, and the market’s impressions about firms in each section. (Interview with a deputy editor of *Guide X*, Paris section)

DATA AND METHOD

We collected law firms’ coverage from 2000 to 2010 for three locations (New York City, London, and Paris) in eight different practice areas encompassing the main scope of corporate legal services: Competition-Antitrust, Litigation, Intellectual Property, Real Estate, Tax, Corporate-M&A, Bankruptcy, and Employment. The market for corporate legal services meets two important conditions to test how category membership affects the perception of identity.

First, categorization and evaluation of law firms stem from external parties (Hsu and Hannan, 2005): several legal directories reflecting audience feedback cover law firms across distinct practice areas. Second, these data enable us to compute a degree of consensus among the three guides as an indicator of the clarity of firm identity. The risk set includes all the law firms that have been covered at least in one practice area in any one of those three guides. The level of analysis is the dyad ‘firm-location’; as for instance, ‘*Clifford Chance-London*’, ‘*Clifford Chance-New York City*’ and ‘*Clifford Chance-Paris*’ are three distinct entities.

Dependent variables. *Identity consensus.* To capture the clarity of firms’ identity, we calculated the average similarity between each pair of guides that covers a firm-location. Following previous studies (Hsu, 2006; Hsu et al., 2012), we used the Jaccard similarity index to capture the co-presence of a firm’s practice areas in each pair of guides. The Jaccard coefficient takes the following form: $J(i, j) = \frac{i \cap j}{i \cup j}$ where $i \cap j$ includes the set of practice areas in which the firm is co-covered in guides i, j , and $i \cup j$ the set of practice areas in which the firm is covered in guides i and/or j . We then averaged the Jaccard coefficients obtained for each pair of guides covering the firm. For example, in 2010, the firm-location dyad *Bingham McCutchen* in London is covered in the areas “Corporate/M&A” and “Bankruptcy” in the *Legal 500* but only in “Bankruptcy” in both *PLC Which Lawyer* and the *Chambers and Partners*. Here, the values of each pairwise comparison are 1 (for the pair *PLC Which Lawyer/ Chambers and Partners*), 1/2 (for the pair *PLC Which Lawyer/ Legal 500*), and 1/2 (for the pair *Chambers and Partners/ Legal 500*). The average value of the three pairwise comparisons is $(1 + 1/2 + 1/2) / 3 = 0.67$. The range of the variable consensus is between 0 and 1. Some firms show no identity consensus across the three guides, whereas other firms reach partial or full consensus on their coverage. Figure 1

shows the evolution of the average levels of the identity consensus variable over the observed years.

Insert Figure 1 about here

Change in identity consensus level. Our second dependent variable captures the occurrence of change in the level of *identity consensus* from one year to another. The state of the event is recorded as the dummy variable *Change*: for a given firm, if there is no change in the level of identity consensus from year t to year $t+1$, *Change* is recorded as 0, and 1 otherwise.

Independent variable. The independent variable is firm's spanning across the categories of law. Each law firm can practices on a continuum from one area of law (a *boutique* firm) to eight areas (a *full service* firm). Category spanning was calculated using a transformation of the Simpson's index of diversity as:

$$\text{Category spanning } [\mu(p, x, t)] = 1 - \sum_{p \in P} \mu^2(p, x, t),$$

that is, 1 minus the sum of the squared proportions of the practice areas in the portfolio μ of the firm-location x at time t , with $p \in P$ is the set of practice areas in which the firm operates. The minimum value for *category spanning* is 0 (for specialists engaged in only one practice area), and the maximum 0.875 (for generalist law firms covering the eight practice areas). Figure 2 shows the evolution of the average levels of the category spanning variable over the observed years.

Insert Figure 2 about here

Control variables. We used a series of control variables in our models to account for other factors that may influence the dependent variable and potentially be correlated with our key

independent variable of interest, thereby possibly biasing our estimates. To capture the effect of the clarity of each category, we controlled for the average *categorical contrast* of categories that a firm spans. The categorical contrast of a focal category is measured as the average grade of membership of its members. We also calculated a firm's *tenure* (Pontikes, 2012) as the cumulative number of years for successive presence in each guide that covers the firm and we calculated the average over the three guides. These directories contain a section where firms can buy professional cards within each jurisdiction. The full-page profiles are based on information provided by the participating firms. This profile has been approved by the firms prior to publication, and is completely separate and different from the editorial section. However, to control for any 'pay per play' effect, we therefore controlled for the potential effect of *advertisement* by counting the average number of page profile purchased in each guide covering the firms. As larger and older firms are more visible on law market, we also controlled for the *local size* of the firm's branch office – with the log of the total number of lawyers it employed in each location – and the *age* as the number of years since it opened an office in the specific location. Finally, we included a set of dummy variables to account for the effects of each specific category; the presence or not in each guide, and the nationality of the firms. We also captured *time* fixed-effect and *location* fixed-effect by including a set of dummy variables in our models.

Analysis. As we theorize that differences across entities in degree of category spanning have some influence on our dependent variables, we used random effects generalized least squares regression analysis to estimate between-firm differences across years. This method allows us to estimate variation of the dependent variable and regressors across organizations as well as higher-level, time-invariant parameters. By running a Breusch-Pagan Lagrange multiplier test, we rejected the null hypothesis that there is no evidence of significant differences across entities is zero ($p < .001$) and then confirmed that random effects regression should be used. As

Nichols (2007) argues, the cluster robust standard error is nearly de rigueur in panel datasets. Cameron and colleagues (Cameron et al., 2011) indicate that clustering at the highest level of aggregation is required. In our setting, this implies clustering one level above the unit of analysis (Pepper, 2002), that is, at the firm-worldwide level (our level of analysis is the firm-location dyad). Thus the cluster-robust standard errors estimation allows us to control for heteroskedasticity and autocorrelation of our panel dataset (Petersen, 2009: 465). In addition, we ran a test that shows the time effects were jointly significant. Following these recommendations, we ran a two way random effect clustering by time and by firm worldwide. We thus captured both the unspecified correlation between observations within the same group (firm worldwide) and the between-firm variations across years.

Regarding our second dependent variable *Change*, we focus on the likelihood of change in the firm’s degree of identity consensus. We thus ran random-effects logistic models suitable for a binary dependent variable, clustering by time and by firm worldwide.

Insert Tables 1 & 2 & 3 about here

RESULTS

Descriptive statistics and pairwise correlations are presented in Table 1. Table 2 and Table 3 contain respectively the estimates from the linear models of our two dependent variables – level of *identity consensus* and its likelihood of *change* from year to year. Model 1 and 2 test our first hypothesis on the U-shape relationship between category spanning and degree of consensus among evaluators. Model 1 includes control variables only. *Categorical contrast* does not have a significant effect on the dependent variable, whereas the average *tenure* of the firm’s coverage across the three guides affects positively and significantly the level of categorical

identity consensus ($p < .001$). As expected, the control variable *size*, capturing the firm's visibility for each location, enhances the level of consensus among evaluators, as well as the number of full-profile advertisement pages purchased. The variable *age* is negative but does not reach statistical significance for any models.

Model 2 adds the linear and quadratic effect of category spanning, both of which are significant and have expected signs, which supports Hypothesis 1 – that the relationship between firm's category-spanning and the consensus across evaluators on the firm's categorical identity has a U-shape. Regarding controls, coefficient estimates and significance levels are robust compared with those of Model 1, except for advertisement in guides that becomes marginally significant ($p < 0.1$). We further conducted the three checks of ensuring a U-shape (Haans et al., 2016; Lind and Mehlum, 2010). We confirmed a significant negative coefficient for our squared variable. We also found a negative slope on our lower bound (-.65) and a positive slope on our upper bound (2.33). The turning point of our U-model was 0.19 with a Fieller interval of [.17; .21]. Figure 3 graphs the effect of category spanning on the level of categorical identity consensus. An interesting aspect of this graph concerns the fact that the U-shape is not symmetrical; identity consensus is substantially higher for full-service firms than it is for boutiques. This may be due to ceiling effects that operate in an asymmetric manner. If an evaluator is covering a firm that has a wide range of practice areas and is uncertain as to whether a firm is a player in one more category, he or she may be likely to default to the assumption that the firm is in everything. Evaluators may be less likely to do the same for firms in a small number of practice areas. This may result in higher consensus levels for firms toward the full-service end of the spectrum. Another reason of the asymmetrical U-shape may be also the result of the contention between the directories. These three guides are “opinion-takers”, i.e. they do not assess legal services providers by themselves but reflect clients' feedback. Thus one option to

differentiate from each other is not based on their ranking report but on their coverage decision. Every guide must cover the most well-known generalist firms in order to be perceived as a legitimate critic, but each guide may also try to differentiate itself from the other guides by covering different or additional law firms. These additional firms that guides may cover at their own discretion will be mostly small boutiques or narrow specialist firms. This effect of competition between the directories may result in lower consensus levels for firms toward the specialist end of the spectrum.

Insert Figure 3 about here

To probe further our theoretical conjecture, Model 3 and 4 in Table 3 present the results of the random-effect logistic regressions on our dependent variable *change* in the level of identity consensus from year to year. Model 3 contains controls only. Symmetrically to Model 1, the average *tenure in guides* and the *size* of firm have a significant negative effect on the likelihood of change in the degree of consensus among the three evaluators. That is, the longer the guides have tracked an organization as well as the larger that organization, the more stable its categorical identity. However, the coefficient of the variable *advertisement* is negative but non significant.

Model 4 indicates that the linear and quadratic effect of category spanning are respectively positive and negative, and both highly significant ($p < .001$), which supports H2. The coverage of firms fitting with one of the two types ‘boutique’ or ‘full-service’ is less likely to change year over year compared to firms engaged in intermediary practice areas number.

Similarly to the first hypothesis, we used post-estimation commands to test for the presence of an inverse U-shaped relationship between our explanatory variable and our outcome variable on the specific interval of the dataset (Lind and Mehlum, 2010). We confirmed a significant positive coefficient for our squared variable and we found a positive slope on our lower bound (6.23) and

a negative slope on our upper bound (-5.39). The turning point of our U-model was 0.47 with a Fieller interval of [.41; .55]. We transformed our coefficients from the logit model and graphed in Figure 4 the predicted probability of change in the level of categorical identity consensus as a function of category spanning. For example, a firm spanning 2 categories has a 60% chance of being perceived differently by the evaluators at year $t+1$ compare to year t in terms of its category coverage. The direction of the change follows the same pattern as the U-shape curve in Figure 1, (i.e. toward less consensus for firms spanning a middling number of practice areas, and higher consensus for boutiques and full service law firms).

Insert Figure 4 about here

DISCUSSION

In this paper, we have shown that evaluators perceived firms in the corporate legal services market in a more consistent manner – both over time and across evaluators – to the extent that a firm has hewn closer to either the boutique or full-service law firm models. This is intriguing, as most prior work in this area has found that category spanners are overlooked or devalued. The few studies that have documented exceptions to this rule have tended to explain them by positing variation in audience tastes, such as a preference for novelty (Hannan et al., 2016; Pontikes, 2012) or a classification system that was relatively less institutionalized (Ruef and Patterson, 2009). In the market for corporate legal services, however, it is hardly the case that the clients of full-service law firms are novelty-seekers, and the full-service model has been widely recognized for quite some time.

We explained this outcome by noting that the full-service law firm is one of two widely theorized and accepted approaches to structuring a law firm, and that full-service firms have even rated as being of superior quality relative to their more focused competitors (Paoletta and Durand,

2016). Given that clients in the legal services market appear to hold a theory of value that points to the distinctive advantages of generalists over specialists, they seek out generalists and view such firms clearly and consistently. However, they also see specialist firms clearly, as they embody known categories of law. Yet, they have difficulty making sense of firms that span a middling number of categories.

Implications for the Understanding of Categories in Markets

In our view, this finding does not so much challenge the received wisdom on category spanning as it instead represents yet another testament to the idea that lack of fit between an offering and the mental models that participants employ to make sense of a market can cause a firm to be perceived as having an unclear identity, leading to a variety of negative consequences. However, our results remind us to bear in mind the specific mental models of the world (i.e., classification systems) that that evaluators bring to the evaluation process and the extent to which those models are widely accepted, even if they involve category spanning. Such models are historically and culturally contingent, as variation over time in the acceptance and definition of certain categories illustrates (e.g., Rao et al. 2003, Ruef and Patterson, 2009).

In our view, neither the “categorization as theoretical tool” nor the “typicality judgment” approach alone could explain our result. In particular, the categorization-as-theoretical-tool approach sheds light on why full-services firms are evaluated favorably in this setting, as Paoella and Durand (2016) have shown. Starting from this observation, it is natural to predict that such firms would not elicit audience confusion and that firms that look less like the sought-after full-service model might be viewed less clearly. Yet, from this perspective, it is more difficult to understand the outcomes that we observe for boutique firms. While the “categorization as a theoretical tool” approach suggests that these firms would be relatively devalued, it not anticipate

the slightly higher consensus that we observe in the perceptions of these firms' identities relative to those that span a middling number of categories.

Research in the "typicality judgment" tradition, on the other hand, explicitly theorizes the outcomes of interest (i.e., agreement and consistency of perceptions) and correctly predicts that evaluators would see boutique firms clearly while experiencing firms that are less typical, such as those spanning a few categories, as more confusing. However, this approach would have difficulty explaining why evaluators easily and consistently discerned the identities of full-service firms in this context. By combining distinctive insights of these two approaches, we are better able to comprehend the full picture. That is, an audiences' theory of value may create situations in which category spanning is valued and therefore does not elicit confusion. At the same time, however, categories fundamentally structure perception. As we have shown in this setting, audiences can discern specialists clearly, even if they do not view them as attractive.

Greater consideration of how these two approaches might interact with one another seems warranted. One area that could be particularly promising involves examining changes in the meaning of categories over time and how those changes lead to shifts in perception and valuation by defining the metric against which typicality is measured. One interpretation of the slight u-shaped relationship between category-spanning and consensus on identity that we found in our data is that it represents one look into a dynamic process by which the recognition of firms is slowly coming into alignment with evaluative outcomes. That is, boutique firms may have been more widely recognized in the past than we found them to be during the more recent time period that we studied; even though they enjoy an advantage over firms that span a middling number of categories today, they may be increasingly viewed as anomalies as the market moves toward favoring full-service firms.

In the current state of the literature, while the drivers of audiences' theory of value (goals, knowledge, experience, dispositions, etc.) include a dynamic dimension, categories are treated as relatively static. Even though a given architecture of categories shapes perceptions at any point in time and sets limits for organizations, a different configuration of categories may emerge in the future. A sociological perspective would thus favor studies that examine dynamic processes of category emergence and meaning change (Kennedy and Fiss, 2013). New avenues for categorization research would better connect the existing sociological and ecological work on categories with other institutional and cultural approaches that aim to describe and understand not just the discipline involved in markets' cognitive infrastructures but also the networks of meaning that emerge, propagate, and self-justify themselves via sequences of categorizations and actions.

Implications for Identity Research

One strength of this study involves our ability to more directly measure the mechanism that is thought to lead to devaluation – namely an audience's perception that an offering lacks a clear identity – though observation of an audience's agreement on a firm's identity and its consistency of perceptions over time. We find the U-shaped relationship between consensus across evaluators and consistency of identity over time as a function of a firm's number of practice areas interesting in light of Paoletta and Durand's (2016) finding of a positive and linear relationship between spanning practice areas and both the evaluation of a firm's quality and its financial performance (net of the effects of consensus on identity). By analyzing the two stages of the evaluation process separately, this pattern of findings highlights the point that it is entirely possible for audiences to clearly recognize multiple types of firms while only valorizing one. Thus, while recognition is important, it does not guarantee a desirable evaluation (cf. Bowers, 2015), nor does it entirely preclude an undesirable one. Rather, identity serves to establish a set of

baseline performance expectations, which naturally influences how actions are subsequently interpreted.

REFERENCES

- Albert, S. & Whetten, D. A. 1985. Organizational Identity. *In: Cummings, L. L. & Staw, B. M. (eds.) Research in Organizational Behavior*. Greenwich, CT: JAI Press.
- Bowers, Anne. "Relative Comparison and Category Membership." *Organization Science*, 26, 571-583.
- Cameron, A. C., Gelbach, J. B. & Miller, D. L. 2011. Robust Inference With Multiway Clustering. *Journal of Business & Economic Statistics*, 29, 238-249.
- Chen, H., Cohen, L. & Lou, D. 2015. Industry Window Dressing. Working paper, Lond School of Economics, Financial Markets Group.
- Coates, J. C., DeStefano, M. M., Nanda, A. & Wilkins, D. B. 2011. Hiring Teams, Firms, and Lawyers: Evidence of the Evolving Relationships in the Corporate Legal Market. *Law and Social Inquiry-Journal of the American Bar Foundation*, 36, 999-1031.
- Dezalay, Y. 1992. *Marchands de droit: La restructuration de l'ordre juridique international par les multinationales du droit*, Paris, FR, Fayard.
- Dillon, K. 1989. Can They Skaddenize Europe? *The American Lawyer*, 40.
- Durand, R. & Kremp, P.-A. 2016. Classical Deviation: Organizational and Individual Status as Antecedents of Conformity. *Academy of Management Journal*, 59, 65-89.
- Durand, R. & Paoletta, L. 2013. Category stretching: Reorienting research on categories in strategy, entrepreneurship, and organization theory. *Journal of Management Studies*, 50, 1100-1123.
- Galanter, M. & Palay, T. 1994. *Tournament of lawyers: The transformation of the big law firm*, Chicago, IL, University of Chicago Press.
- Glynn, M. A. 2000. When Cymbals become Symbols: Conflict over Organizational Identity within a Symphony Orchestra. *Organization Science*, 11, 285-298.
- Goldberg, A., Hannan, M. T. & Kovács, B. 2016. What Does It Mean to Span Cultural Boundaries? Variety and Atypicality in Cultural Consumption. *American Sociological Review*. doi: 10.1177/asr
- Golden-Biddle, K. & Rao, H. 1997. Breaches in the boardroom: Organizational identity and conflicts of commitment in a nonprofit organization. *Organization Science*, 8, 593-611.
- Granqvist, N., Grodal, S. & Woolley, J. L. 2013. Hedging Your Bets: Explaining Executives' Market Labeling Strategies in Nanotechnology. *Organization Science*, 24, 395-413.

- Haans, R. F. J., Pieters, C., & He, Z. 2016. Thinking About U: Theorizing and Testing U- And Inverted U-Shaped Relationships in Strategy Research. *Strategic Management Journal*, 37, 1177-1195.
- Hannan, M. T. 2010. Partiality of Memberships in Categories and Audiences. *Annual Review of Sociology*, 36, 159-181.
- Hannan, M. T., Polos, L. & Carroll, G. R. 2007. *Logics of organization theory: Audiences, codes, and ecologies*, Princeton, NJ, Princeton University Press.
- Heinz, J. P., Nelson, R. L. & Laumann, E. O. 2001. The Scale of Justice: Observations on the Transformation of Urban Law Practice. *Annual Review of Sociology*, 337-362.
- Hsu, G. 2006. Jacks of all trades and masters of none: Audiences' reactions to spanning genres in feature film production. *Administrative Science Quarterly*, 51, 420-450.
- Hsu, G. & Hannan, M. T. 2005. Identities, genres, and organizational forms. *Organization Science*, 16, 474-490.
- Hsu, G., Koçak, O. & Hannan, M. T. 2009. Multiple Category Memberships in Markets: An Integrative Theory and Two Empirical Tests. *American Sociological Review*, 74, 150-169.
- Hsu, G., Roberts, P. W. & Swaminathan, A. 2012. Evaluative Schemas and the Mediating Role of Critics. *Organization Science*, 23, 83-97.
- Jonsson, S., Greve, H. R. & Fujiwara-Greve, T. 2009. Undeserved loss: The spread of legitimacy loss to innocent organizations in response to reported corporate deviance. *Administrative Science Quarterly*, 54, 195-228.
- Kennedy, M. T. & Fiss, P. C. 2013. An ontological turn in categories research: From standards of legitimacy to evidence of actuality. *Journal of Management Studies*, 50, 1138-1154.
- Kovács, B. & Hannan, M. T. 2015. Conceptual spaces and the consequences of category spanning. *Sociological science*, 2, 252-286.
- Leung, M. D. & Sharkey, A. J. 2014. Out of Sight, Out of Mind? Evidence of Perceptual factors in the Multiple-Category Discount. *Organization Science*, 25, 171-184.
- Lind, J. T., & Mehlum, H. 2007. With or Without U - The appropriate test for a U shaped relationship. *MPRA*.
- Mayson, S. W. 2010. *Law firm strategy: Competitive advantage and valuation*, Oxford, UK: Oxford University Press.
- McCloskey, M. E. & Glucksberg, S. 1978. Natural Categories: well defined or fuzzy sets. *Memory & Cognition*, 6, 462-472.
- Murphy, G. L. 2004. *The big book of concepts*, Cambridge, MA, The MIT Press.

- Murphy, G. L. & Medin, D. L. 1985. The role of theories in conceptual coherence. *Psychological Review*, 92, 289-316.
- Negro, G., Hannan, M. T. & Rao, H. 2010a. Categorical contrast and audience appeal: niche width and critical success in winemaking. *Industrial and Corporate Change*, 19, 1397-1425.
- Negro, G., Kocak, O. & Hsu, G. 2010b. Research on categories in the sociology of organizations. In: Hsu, G., Kocak, O. & Negro, G. (eds.) *Categories in Markets: Origins and Evolution. Research in the Sociology of Organizations*. Bingley, UK: Emerald.
- Nichols, A. 2007. Causal inference with observational data. *Stata Journal*, 7, 507.
- Paoletta, L. & Durand, R. 2016. Category spanning, evaluation, and performance: Revised theory and test on the corporate law market. *Academy of Management Journal*, 59, 330-351.
- Pepper, J. V. 2002. Robust inferences from random clustered samples: an application using data from the panel study of income dynamics. *Economics Letters*, 75, 341-345.
- Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of financial studies*, 22, 435-480.
- Phillips, D. J., Turco, C. & Zuckerman, E. W. 2013. Betrayal as market barrier: Identity-Based Limits to Diversification among High-Status Corporate Law Firms. *American Journal of Sociology*, 118, 1-32.
- Pontikes, E. G. 2012. Two sides of the same coin: How ambiguous classification affects multiple audience evaluations. *Administrative Science Quarterly*, 57, 81-118.
- Rao, H., Monin, P. & Durand, R. 2003. Institutional change in Toque Ville: Nouvelle cuisine as an identity movement in French gastronomy. *American Journal of Sociology*, 108, 795-843.
- Rao, H., Monin, P. & Durand, R. 2005. Border crossing: Bricolage and the erosion of categorical boundaries in French gastronomy. *American Sociological Review*, 70, 968-991.
- Rehder, B. 2003. Categorization as causal reasoning. *Cognitive Science*, 27, 709-748.
- Rosch, E. & Mervis, C. B. 1975. Family resemblances: Studies in internal structure of categories. *Cognitive Psychology*, 7, 573-605.
- Rosch, E. H. 1973. Natural categories. *Cognitive Psychology*, 4, 328-350.
- Ruef, M. & Patterson, K. 2009. Credit and Classification: The Impact of Industry Boundaries in Nineteenth-century America. *Administrative Science Quarterly*, 54, 486-520.
- Second Annual IICJ Global In-house Counsel Survey Report 2010. 2010. International In-house Counsel Journal.

- Shiller, R. J. 1990. Speculative prices and popular models. *The Journal of Economic Perspectives*, 4, 55-65.
- Smith, E. B. 2011. Identities as lenses: How organizational identity affects audiences' evaluation of organizational performance. *Administrative Science Quarterly*, 56, 61-94.
- Strang, D. & Meyer, J. W. 1993. Institutional conditions for diffusion. *Theory and society*, 22, 487-511.
- Vergne, J.-P. & Wry, T. 2014. Categorizing Categorization Research: Review, Integration and Future Directions. *Journal of Management Studies*, 51, 56-94.
- Zuckerman, E. W. 1999. The Categorical Imperative: Securities Analysts and the Illegitimacy Discount. *American Journal of Sociology*, 104, 1398-1438.
- Zuckerman, E. W. 2000. Focusing the Corporate Product: Securities Analysts and De-diversification. *Administrative Science Quarterly*, 45, 591-619.
- Zuckerman, E. W. & Rao, H. 2004. Shrewd, crude or simply deluded? Comovement and the internet stock phenomenon. *Industrial and Corporate Change*, 13, 171-212.

TABLE 1. Descriptive Statistics and Pairwise Correlations

Descriptive Statistics and Pairwise Correlations (N=4386)

Variables	Mean	Std. Dev.	Min	Max	1	2	3	4	5	6
1. Categorical identity consensus	0.34	0.38	0	1						
2. Category spanning	0.31	0.33	0	0.88	0.35					
3. Categorical contrast	0.49	0.09	0.26	0.83	-0.13	-0.38				
4. Tenure in guides	4.21	2.72	0	11	0.32	0.36	-0.29			
5. Advertisement in guides	0.49	0.51	0	3.25	0.28	0.43	-0.28	0.04		
6. Size (logged)	4.68	1.03	0	7.48	0.25	0.31	-0.07	0.17	0.20	
7. Age (logged)	3.18	1.26	0	5.89	0.09	0.16	-0.04	0.22	0.19	0.24

TABLE 2. Random-Effects GLS Estimations: Effects on Level of Categorical Identity Consensus

Variables	Level of Categorical Identity Consensus	
	Model 1: Control	Model 2: H1
Category spanning		-0.65*** (0.047)
Category spanning ²		1.70*** (0.074)
Categorical contrast	0.04 (0.074)	0.11+ (0.058)
Tenure in guides	0.02*** (0.002)	0.01*** (0.002)
Advertisement in guides	0.04*** (0.012)	0.02+ (0.009)
Size	0.01** (0.004)	0.01* (0.003)
Age	-0.004 (0.004)	-0.001 (0.003)
Constant	-0.46*** (0.049)	-0.44*** (0.036)
Category dummies	Yes	Yes
Nationality dummies	Yes	Yes
Guide dummies	Yes	Yes
Year dummies	Yes	Yes
Location area dummies	Yes	Yes
Observations	4386	4386
Number of firm-location	696	696
Number of firm-worldwide	585	585
R ²	0.73	0.85
log pseudo likelihood		

Note: Clustered-robust standard errors are shown in parentheses.

- + $p < .10$
- * $p < .05$
- ** $p < .01$
- *** $p < .001$

TABLE 3. Random-Effects Logistic Estimations: Likelihood of Change in Categorical Identity Consensus

Variables	Change in Categorical Identity Consensus	
	Model 3: Control	Model 4: H2
Category spanning		6.23*** (0.787)
Category spanning ²		-6.64*** (0.943)
Categorical contrast	-0.77 (0.962)	0.10 (0.956)
Tenure in guides	-0.22*** (0.038)	-0.19*** (0.037)
Advertisement in guides	-0.02 (0.171)	-0.05 (0.151)
Size	-0.16* (0.077)	-0.14* (0.067)
Age	-0.06 (0.056)	-0.07 (0.048)
Constant	-1.78** (0.606)	-2.26*** (0.581)
Category dummies	Yes	Yes
Nationality dummies	Yes	Yes
Guide dummies	Yes	Yes
Year dummies	Yes	Yes
Location area dummies	Yes	Yes
Observations	3618	3618
Number of firm-location	597	597
Number of firm-worldwide	500	500
R^2	0.42	0.45
log pseudo likelihood	-1706.06	-1667.88

Note: Clustered-robust standard errors are shown in parentheses.

- + $p < .10$
- * $p < .05$
- ** $p < .01$
- *** $p < .001$

FIGURE 1

Level of Average Categorical Identity Consensus over Observation Period

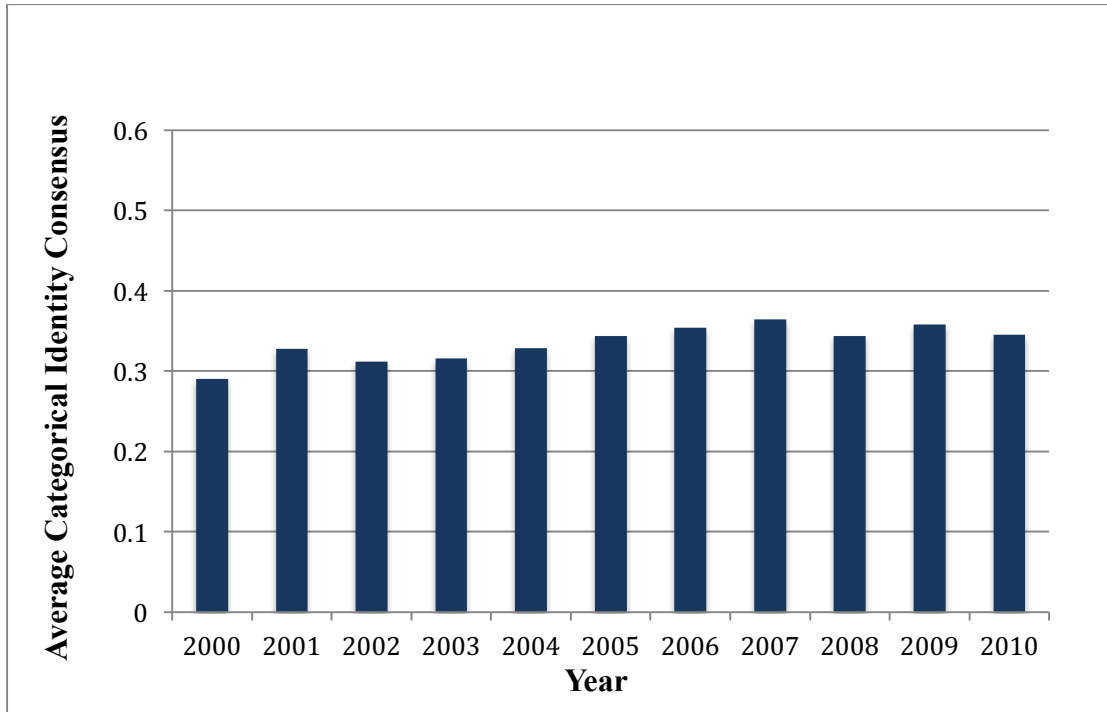


FIGURE 2

Level of Average Category Spanning over Observation Period

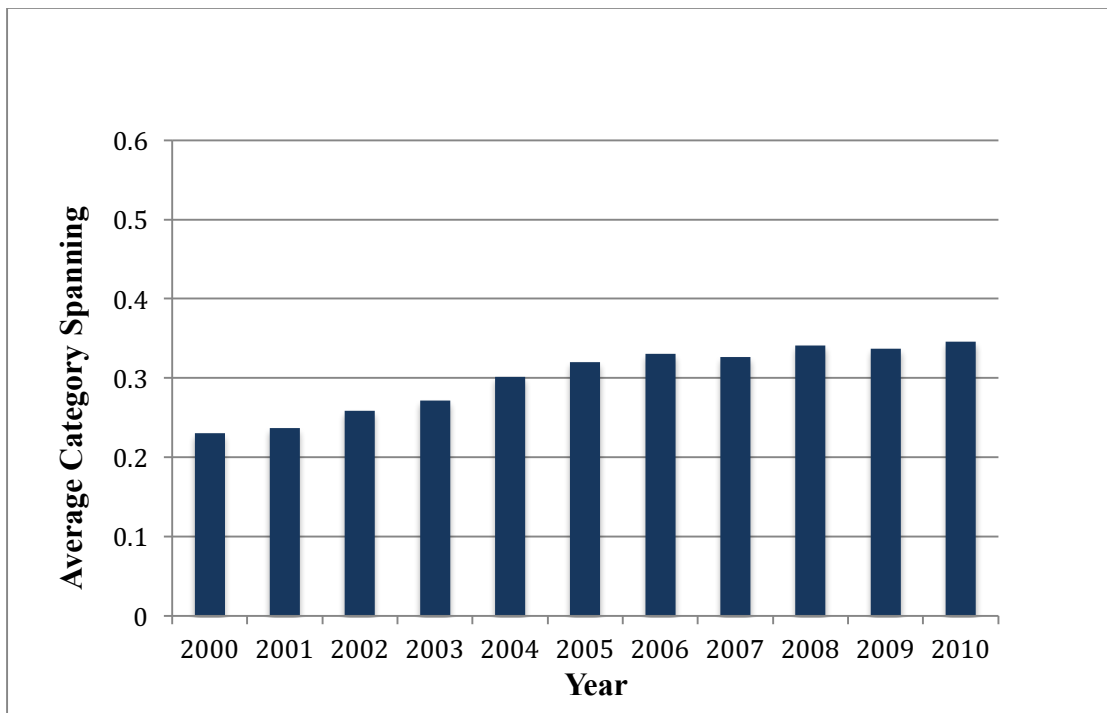


FIGURE 3

Effect of Category Spanning on the level of Categorical Identity Consensus

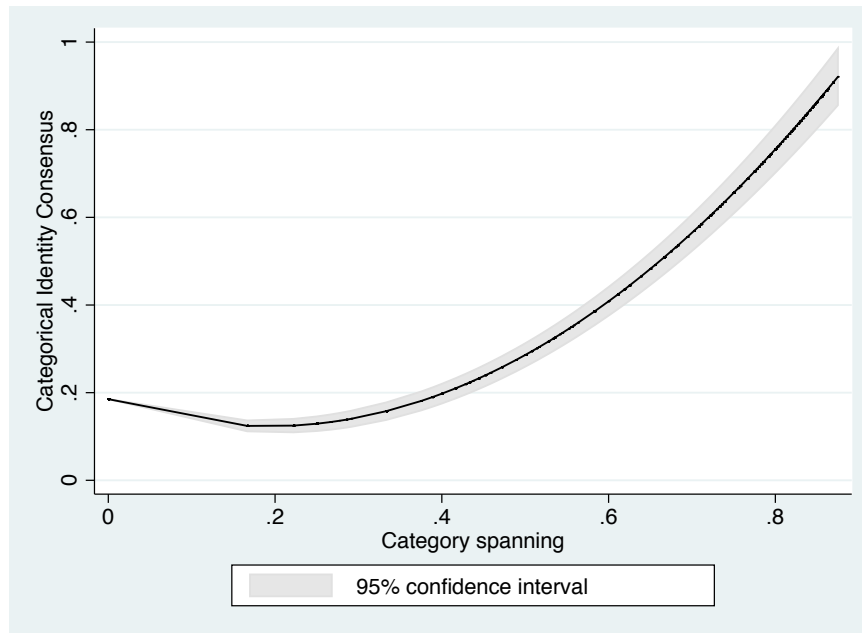


FIGURE 4

Predicted probability of change in the level of Categorical Identity Consensus as a function of Category Spanning

