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Vertical disintegration of production and the rise of market for brands

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ABSTRACT

The emergence of a market for brands is a relevant economic phenomenon that creates entrepreneurial opportunities. In this research, we explore the relationship between the size of market for brands and the vertical disintegration of production, as antecedent of the rise of market for brands. We take an industry-level perspective and focus on trademark transactions in the US as the empirical setting for our analysis. The results uncover a positive relationship between the degree of industry vertical disintegration and the size of market for brands. We conclude with examples of how a market for brands creates entrepreneurial opportunities.

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1. Introduction

Brands represent the most valuable intangible asset (Itami and Roehl, 1991) that firms as diverse as Apple and McDonald's own, often worth much more than other assets, such as property and machinery (The Economist, 2014). From the economic point of view, brands may facilitate the flow of information in product markets to reduce information asymmetry issues (Aaker, 1991). Brands better enable matching between suppliers and consumers to the extent that they convey information to consumers about the origins of goods or services. Also, brands allow consumers to better express their preferences formed by past experience in the market place (Economides, 1988; Ramello, 2006). As intangible market-based resources, brands can represent valuable resources that can create competitive advantage over competitors (Kozlenkova et al., 2014; Srivastava et al., 2001).

The willingness of firms to develop brands has been associated with the cost of developing brands internally (see e.g., Frey et al., 2014). The development of a strong brand is not something that can be achieved over a short period of time and without substantial and risky investment: firms may therefore look outside their boundaries to acquire brands. But also this exchange process is not without costs. In fact, it can be harmed by a number of related problems, such as a difficulty to estimate the economic value of brands and inappropriate management of brands when transferred. What is more, brands are often integrated with the rest of the business process of specific firms and the lack of asset complementarity may weaken the ability of the acquirer to generate value from a particular brand as a traded resource (see e.g. Makadok, 2001). In spite of this, anecdotal evidence of Italian fashion brands being acquired by foreign firms, suggests that firms have become more active in the acquisition and disposal of brand assets; the understanding of this important phenomenon is however still lacking.

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By taking a broad view of the phenomenon, the aim of this research is to provide evidence of the existence of a market for brands and enablers for its emergence. We are interested in brand transactions that involve the transfer of specific brand assets between firms rather than the buy or sell of entire firms through M&As. In this research we explore hypotheses on what determines the emergence of market for brands, in particular on the relationship between the process of disintegration of production and the size of this market. As any emerging market, a market for brands creates entrepreneurial opportunities while so far intangible assets have mainly been regarded as factors for the success of entrepreneurial firms (Williams et al., 1991).

2. Value chain disintegration as driver of the increase of brand transactions

A market for brands is most likely to emerge when brands can be separated from the upstream activities manufacturing and design. In this respect, a notable feature of buyer-driven value chains - which are common in consumer good industries such as footwear, fashion, and consumer electronics - is that they are characterized by branded marketers that play a pivotal role in setting up decentralized production networks. In the sportswear sector, for instance, since the mid-1970s several prominent firms launched (e.g. Nike, Reebok, etc.) successful brands without any manufacturing.

The process of outsourcing of upstream activities has shifted the sources of competitive advantage of leading marketers to downstream and market-based resources, such as brands. Branded marketers have thus increased their effort in building new brands or developing and reinforcing existing brands. At the same time, however, these branded marketers have been instrumental in providing suppliers with knowledge that subsequently allowed them to upgrade their position in the global value chain (see e.g., Herrigel et al., 2013). In order to leverage their internal capabilities or exploit superior capabilities, suppliers may seek to acquire the market-based resources (i.e. brands) owned by downstream branded companies.

Based on the above arguments we hypothesize the following:

H1. : There is a negative relationship between the degree of vertical integration of production and the size of market for brands.

3. Empirical analysis

3.1. Data

The empirical analysis carried out is based on trademark transactions in the US manufacturing. There is a close relationship between trademarks and brands. A trademark is “a word, phrase, symbol or design, or a combination thereof, that identifies and distinguishes the source of the goods of one party from those of others” (<http://www.uspto.gov>). Trademarks correspond to the legal rights associated with brand assets, for instance brand name, logos, and slogans that may be codified and thus transferred or purchased. Likewise, a trademark right enables its owner to prevent others from taking advantage of the goodwill in the owner’s brand name.

The data collected for this research allows to empirically explore the relationship between the size of market for brands and the process of vertical integration of production at the industry-level.

The database was obtained by merging several secondary sources of data. The first source was the *USPTO Trademark Case File Dataset* (Graham et al., 2013), which contains detailed information on the registered trademarks at USPTO (United States Patent and Trademark Office). From this source it was possible to gather data on the NICE¹ class to which trademarks belong. The second source of data was the *USPTO Assignment Dataset* (USPTO, 2014), where the complete history of interests in a trademark is recorded. This data includes, among other information, the type of transaction and the date of the execution of a transaction. The integration of the two sources of data allowed us to distinguish assignments² from other types of transactions such as merger- or security-based transactions executed through the years across the several NICE classes.

To gather information on US manufacturing industries, we used the *NBER-CES Manufacturing Industry Database* (Becker et al., 2013). This database contains 6-Digit NAICS³ industry-level annual economic figures, such as data on output, employment, input costs, investment, capital stocks, and various industry-specific price indexes.

Correspondence between trademark (NICE) and industry (NAICS) classification was not straightforward. Lybbert et al. (2014a) have implemented a probabilistic matching algorithm to map trademark data directly into industry categories. We used this matching approach - which has been proposed to similarly concord patents to economic data (Lybbert and Zolas, 2014) - to allocate NICE classes of trademarks to NAICS industry codes in order to create measures of intensity of trademark exchanges that are comparable across industries at 4-digit NAICS level of aggregation.⁴

¹ The NICE classification is the international classification system of goods and services applied for the registration of a trademark.

² An assignment of assignor's interest is a “transfer by an assignor of its entire right, title, and interest in a registered mark or a mark for which an application for registration has been filed” (USPTO, 2014, p. 8)

³ The NAICS classification (North American Industry Classification System) is the standard used by US Federal statistical agencies in classifying economic activities.

⁴ We used the concordance tables provided in Lybbert et al. (2014b) to match trademark data with industry data.

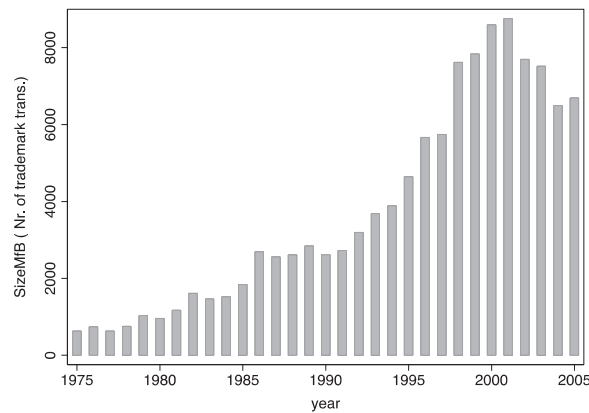


Fig. 1. Evolution of the size of market for brands.

3.2. Variables

As a proxy of the size of the market for brands (*SizeMfB*) in an industry in a given year, we considered the number of executed trademark assignments mapped into that industry in that year. As proxy of industry degree of vertical integration of production (*VertInt*), we used the Adelman index (Adelman, 1955) obtained as the ratio of industry value added to industry value of shipments. The basic idea behind the index is that an increase of the degree of vertical integration will be accompanied by the fall in outside purchase of inputs relative to total sales, and this will then be manifest as an increase in the magnitude of the index.

3.3. Main findings

The main goal of our analysis was to provide empirical evidence of the existence of a market for brands and to explore on what enables its emergence. The sample consists of six industries: Footwear manufacturing (NAICS 3162), Machinery manufacturing (NAICS 3339), Computer and peripheral equipment manufacturing (NAICS 3341), Communication equipment manufacturing (NAICS 3342), Electronic instruments manufacturing (3345), and Ship and boat manufacturing (3366). The time span analyzed was 1975–2005.

Fig. 1 provides a picture of the evolution of the total yearly trademark assignments – our proxy of the size of market for brands – executed between 1975 and 2005 in the six industries. Taken as whole, from the mid-1970s to the beginning of the 2000s the size of market for brands climbed dramatically. Starting from about 700 assignments in 1975, the number of yearly trademark assignments grew up at a compound annual growth rate of about 10% from 1975 to 1990 and of about 12.6% during the 1990s. In 2000–2001, the trademarks exchanged exceeded 10,000 assignments per year. Afterwards, the number of assignments executed started trending down. This may be explained by an increasing ability of brand owners to generate value by means of other types of brand transactions, such as licensing or collateralization, rather than only through buying and selling intangible assets (USPTO, 2014; Fischer and Ringler, 2014).

We then explored the relationship between the size of market for brands and the degree of vertical integration of production at the industry level. Table 1 presents summary statistics for the variables of interest. There is heterogeneity in the size of market for brand and the degree of vertical integration across industries. On average, the size of the market for brands in the ICTs is larger than that of other industries. The average degree of vertical integration ranges from about 48% for computer and peripheral equipment manufacturing to about 56% for communication equipment manufacturing industry. The dispersion of both variables is rather substantial in all industries. Moreover, the range of variation (from minimum to maximum) as well as the standard deviation of both variables appears to be linked, that is an increase in the dispersion of

Table 1.
Summary statistics.

Industry (NAICS)	SizeMfB				VertInt			
	Mean	St. dev.	Min	Max	Mean	St. dev.	Min	Max
Footwear manufacturing (3162)	669.4	348.6	167.4	1215.8	51.6	2.4	45.4	55.0
Machinery manufacturing (3339)	529.0	321.5	121.2	1166.6	52.3	2.0	48.6	55.8
Computer and periph. equip. manuf. (3341)	1364.1	1077.9	169.4	3391.6	47.9	6.4	37.8	58.2
Communication equipment manuf. (3342)	1189.8	985.8	145.2	3081.0	56.3	2.9	49.2	62.2
Electronic instruments manufacturing (3345)	692.3	512.0	105.0	1621.2	65.2	1.5	61.4	68.6
Ship and boat manufacturing (3366)	30.0	26.5	2.2	83.0	54.8	1.8	51.0	57.4

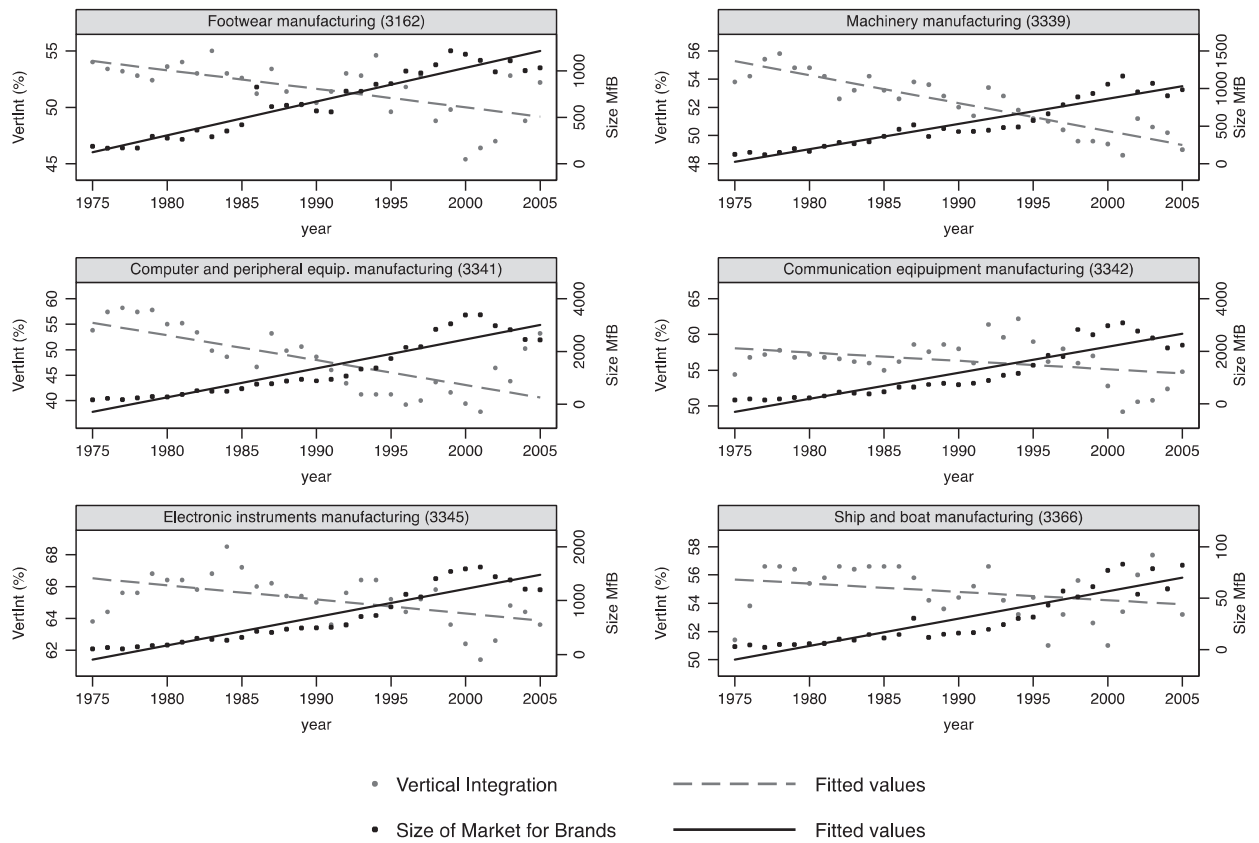


Fig. 2. Size of market for brands and degree of vertical disintegration of industries.

the industry degree of vertical integration is associated with an increase of the dispersion of the size of market for brands.

We proceeded to investigating whether and how the two variables are related. Fig. 2 allows a first graphical exploration of our hypothesis of negative correlation between the vertical integration of production and the size of market for brands. What is seen in this figure is the relationship between how *VertInt* variable changed (left y-axis) and how *SizeMfB* changed (right y-axis) with time. The evolution of both variables provides first evidence supporting our hypothesis: in each industry

Table 2.
Regression results.^a

Dependent variable: SizeMfB	(1)	(2)	(3)
VertInt	-49.85 ^{***} (12.96)	-10.55 ^{***} (3.196)	-10.85 ^{**} (5.355)
Industry dummies	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes
Intercept	2645 ^{***} (703.3)	589.9 ^{***} (216.2)	604.2 [*] (322.2)
Nr. Obs.	186	186	186
Nr. of cross-sections		6	6
R ²	0.796		0.590

Standard errors in parentheses.

^{***} $p < 0.01$.

^{**} $p < 0.05$.

^{*} $p < 0.1$.

^a LS (Least square dummy regression) estimation in Model 1; Parks FGLS estimation with heteroscedastic, cross-sectional dependence, and serial correlation correction in Model 2; Prais–Winsten estimator with panel-corrected standard errors (PCSE) in Model 3.

the degree of vertical integration tends to go down with time, while the size of market for brands tends to go up.

Finally, we performed a formal test of our hypothesis by regressing the size of market for brands on the degree of vertical integration. We considered the pooled arrays of data obtained by combining cross-sectional data on the N industries ($N=6$) and T time periods ($T=31$) under exploration to produce a panel data set of $N \times T$ observations ($N \times T=186$), and employ a two-way fixed effects model to control both for unobserved industry stable factors that affect vertical integration and market for brands, and for factors that are invariant across industries but change over time, such as the general economic conditions, etc. Formally, the empirical model is as follows:

$$\text{Size MfB}_{it} = \alpha + \beta \cdot \text{VertInt}_{it} + \gamma_i + \tau_t + \varepsilon_{it}$$

where SizeMfB_{it} is the size of Market for Brands for the sector i in year t ; VertInt_{it} is the degree of vertical integration for the sector i in year t ; γ_i is the industry-fixed effect and τ_t is the time-fixed effect.

Table 2 reports the regression results. As a reference point, we first estimated our empirical model with the OLS estimator (Model 1). According to our expectation, there is a negative and significant relationship ($\beta = -49.85$, $p < 0.01$) between the degree of vertical integration of production and the size of market for brands. Moreover, the model explains a substantial degree of variance (79.6%) of the size of the market for brands. However, the possibility of non-spherical errors due to the panel structure of the data can generate inefficiency in coefficient estimation and biased estimation of standard errors (Greene, 2003). To ensure robustness of our results, we re-estimated our model using alternative estimators. Model 2 implements the Parks method of feasible generalized least squares time-series regression (Parks, 1967) to simultaneously handle both potential cross-sectional dependence and serial correlation, which may be a serious problem for panel data. Event though Parks estimation provides more efficient coefficient estimates, it may underestimate standard errors in finite samples; hence, we estimated our model also with the Panel-Corrected Standard Error (PCSE) estimator (Model 3) which provides more accurate confidence intervals (Beck and Katz, 1995).⁵ The effects reported by Model 2 ($\beta = -10.55$, $p < 0.01$) and Model 3 ($\beta = -10.86$, $p < 0.05$) still support the hypothesis of a negative and significant relationship between the size of market for brands and the degree of vertical integration of production.

4. Conclusions: market for brands and entrepreneurial opportunities

Vertical disintegration leads to the emergence of a market for brands. We view a market as a place where the sellers of a particular good or service can meet with the buyers and where transactions can potentially take place. In our case, brands are sold, acquired and resold (e.g. Nike, the largest player in the sporting goods industry bought Hockey brand Bauer in 2004 and sold it in 2008) through trademark transactions. We have shown that this phenomenon is manifest at the global level but it remains unclear in terms of fine grained data. In general, entrepreneurial opportunities are the outcome of changing circumstances (Eckhardt and Shane, 2003). Increasing vertical disintegration is one factor that reduces barriers of entry, facilitating access to technology and other strategic factors and creates thus opportunities for new venturing. Moreover, intangible assets such as brands should facilitate market entry for entrepreneurial firms (Williams et al., 1991). While our study does not uncover if the emergence of a market for brands is related to entrepreneurial dynamics (such as an increase of entry rates), we can not exclude that small and entrepreneurial firms do not participate in the market for brands. Given the high number of transactions it is unlikely, that the phenomenon is the result of exclusive trading by large firms. The existence of a substantial market of brands can be seen as a signal for the existence of entrepreneurial behavior. Moreover, previous research suggests that new market entry with intangible assets such as a brand increases the survival probability of the new entrants (Williams et al., 1991). Every time a brand is bought or sold creates multiple opportunities for future entrepreneurial behavior (Timmons, 1994).

So far, we lack substantial insights about how entrepreneurs can take advantage of the emergence of a market for brands (independent if they are drivers or not of its emergence). From a micro-perspective, it appears interesting to identify some forms of entrepreneurial behavior that could inform future research for in-depth investigation. First, suppliers can use brand acquisitions to move downstream into markets. We evidence a few cases where Asian suppliers acquired Western brands. Examples are the acquisitions of the GE brand for home appliances by Chinese manufacturer Haier (in 2015), IBM's PC-brand (in 2004) as well as Motorola's mobile phone activities (in 2014) by Chinese Lenovo, the acquisitions of Jaguar and Land Rover (in 2008) by Indian Tata iron manufacturer, or Philips' TV brand by Chinese TPV Technology limited (in 2012). Suppliers or subcontracting firms offering unbranded products or complex components can use the market for brands to position themselves downstream in the value system by acquiring a new brand identity.

Second, similar to any property asset, entrepreneurs can opportunistically buy and sell brands to exploit short- and long-term changes in market values. Billy Ngok in 2007 bought the Tacchini brand, integrating it into the Chinese Hembly group. Diego Della Valle, an apparel and shoe industry mogul, personally bought the Rogier Vivier brand in 2003 for a few million dollars, five years after the eponymous French designer died. He then licensed it first to the Tod's group, later selling it outright to them in 2015 for about \$470 million.

⁵ We used STATA econometric software (ver. 13.0) for our empirical analysis. We implement Parks and PCSE estimation respectively by means of the "xtgls" command and the "xtpcse" command.

Third, new brand-based business models can be observed. Iconix or the Sequential Brands Group are firms that buy brands without making the branded products and instead leverage the brand name itself as an intangible asset. The business model consists of acquiring a portfolio of brands (also following American bankruptcy legal proceedings pursuant to Chapter 11). They then license these brands to other firms, after a significant restructuring intervention. These examples illustrate how a market for brands creates entrepreneurial opportunities. However, we still lack an in-depth understanding of the phenomenon, its variance and its substance. We do not know nor to what extent entrepreneurs exploit the existence of a market for brands, nor how this might affect their performance. This opens up a vast area for future research to explore how brands are leveraged both to rapidly scale up firms and to support the migration of once “peripheral” firms to a central market position.

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