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Intangible Marketing Capital

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ABSTRACT

We present several empirical facts about trends in marketing investment in the US. We also present estimates of the private value of brands to firms and aggregate intangible brand capital stocks created by these investments. These investments include the creation and maintenance of a brand name and all its corresponding brand elements (e.g., awareness, reputation, image, etc.), along with the investments in the labor force used to manage and oversee the branding. We then discuss the private benefits to firms from their advertising and the established academic wisdom for the striking magnitude of marketing outlays. Finally, we explore the welfare implications of investments in brand capital.

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I. Introduction

During the early and mid 20th century, economists were struck by the rapidly increasing quantitative role of marketing – advertising, branding, promoting, selling and trademarking – both for firms and industrial output (e.g., Shaw 1912).[5] Braithwaite (1928, p. 16) observed that "goods cost as much to market as they do to manufacture." Coase (1937, p. 394) went so far as to conclude "the introduction of the firm was primarily due to the existence of marketing costs." Bain (1956) singled out consumer preferences for brands as the largest and most frequent barrier to entry.

Despite this early attention, the subsequent literatures in industrial organization and macro-productivity have largely abstracted away from the roles of marketing investments in the study of equilibrium industry structure and aggregate output. This oversight is significant, considering the scale of marketing investments. Corrado et al. (2005) estimated that by the early 2000s, investment in intangible capital in the U.S. reached about 12% of U.S. GDP.[6] Nearly one-fifth of this intangible capital investment (roughly $500 billion in 2021) was attributed to marketing expenditures that build and sustain brand equity. None of this intangible capital appears as investment in the National Income Product Accounts (NIPA), despite its size.

Furthermore, the relative importance of brand investment appears to be growing. Intangible investment is rising as a share of GDP and relative to tangible investment (Corrado and Hao 2013); see also Figure 1. The share of both total employment and payroll accounted for by occupations that manage brand capital (SOC codes 11-2XXX: sales, marketing, or public relations managers) roughly doubled between 2005 and 2019.[7] This growth in internal marketing expertise (human capital) represents yet another overlooked source of intangible firm capital.

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[5] Galbraith and Black (1935) conducted a quantification of the US marketing sector, finding a large role for demand for convenience and service.
[6] Intangible capital includes a broad array of assets such as databases, capitalized R&D, new copyrights & licenses, brand equity, and better organizational structures. See Corrado et al. (2005).
[7] These labor numbers are conservative as we focus on managerial positions that are primarily charged with the management of brand capital. We exclude the larger group of employees conducting marketing functions such as front-line sales representatives. Salesforce costs represent an additional 5% of GDP, or $800 billion in (Zoltners et al. 2013) and span over 13 million employees in 2020, close to 10% of the US labor force.

In this article, we explore the many roles and effects of branding and intangible brand capital. We focus on the creation and maintenance of a brand name and all its corresponding brand elements (e.g., awareness, reputation, image, etc.), along with the investments in the labor force used to manage and oversee the branding. While advertising and promotion represent the primary communication instruments to build and maintain brand equity, we acknowledge that such efforts are not the sum total of brand capital creation. On the one hand, not all advertising should be capitalized as branding; some is used up contemporaneously and could be thought of as a fully expended input. On the other hand, our focus on branding communication investments excludes the potentially large role in intangible relational capital building of other marketing investments such as salesforce efforts (relationships between sales reps and their customers) and distribution and retailing efforts (relationships with the *trade*).[8]

The large investments in branding and marketing expertise are unsurprising. Firms with established brands privately benefit from the incremental revenue streams (i.e., marginal revenue products) associated with such sources due to (a) high awareness and consideration of their products (e.g., Shocker et al. 1991; Laurent et al. 1995) and (b) a reputation for superior *quality* (Bai 2017; McDevitt 2011; McDevitt 2014; Minichilli et al. 2021; Shapiro 1982; Shapiro 1983). These private benefits can persist over the longer term through brand loyalty, stemming from learning and taste formation (Bronnenberg et al. 2012; Bronnenberg et al. 2020) and habits and inertia in buying behavior (Keane 1997; Dubé et al. 2009; Dubé et al. 2010). Furthermore, firms can rely on the legal protection of their brand investments and brand intangible asset value through the intellectual property rights associated with trademarks, packaging patents and copyrights.

While the private incentives for a firm to brand are clear, the social welfare implications of marketing and branding are less obvious. If marketing is *combative,* simply shifting firms' relative market shares, one firm's marketing efforts impose a negative externality on others. Firms may even face a prisoner's dilemma whereby an ex-ante commitment not to invest in marketing would increase their profits and save resources that would otherwise be wasted. Alternatively, if marketing is *cooperative,* shifting out total industry demand, marketing has a positive externality on other firms. Firms would face the temptation to free-ride on one-another's marketing efforts. An ex-ante commitment to advertise more would raise profits and social surplus. In practice, marketing may exhibit both influences.

Beyond these external effects on other firms, marketing also can have welfare-relevant effects on consumers and the functioning of markets. The literature historically bifurcated along two broad views of these effects. Under the *informative* view, as in Stigler (1961) or Telser (1964), marketing serves primarily to make consumers aware of the product and/or of its attributes. Such information reduces search costs and makes markets more competitive, both positive influences on consumer welfare. On the other hand, the *persuasive* or *prestige* view of marketing efforts—around since at least Marshall (1919) and argued famously by Galbraith (1958)—posits branding's role as directly shaping consumer preferences and creating intrinsic consumption value. The persuasive

[8] The *trade* spans the array of trade partners in the distribution channel between the manufacturer and the end-user consumer, such as wholesalers and retailers. Jointly, these account for 13.7% (14.1%) of 2020 US (European) value added (see https://unstats.un.org/unsd/snaama/Basic).

view's welfare effects are more complex. Under the Galbraithian view, the satisfaction of brand-driven preferences (the "dependence effect") should not necessarily be viewed as socially beneficial. For example, such mechanisms might make consumers less price elastic, raising firms' market power and generating deadweight loss, potentially raising the social costs of delivering the (subjective and potentially idiosyncratic to the consumer) welfare benefit. On the other hand, the common practice of modeling such preferences by having brand enter directly into the utility function in some ways implies persuasive marketing inherently raises welfare.

We believe the economics literature has unduly neglected intangible marketing and brand capital and its many micro and macro implications. In this article, we first present several empirical facts about trends in marketing investment in the U.S. (section II.A). We also present estimates of the private value of brands to firms and aggregate intangible brand capital stocks created by these investments. In section III, we discuss the established academic wisdom for the striking magnitude of marketing outlays. Next, we comment in section IV on the private and social returns of marketing investments. Section V provides several directions for future research. Finally, section VI concludes.

II. Marketing Spending and Intangible Brand Capital: Some Stylized Facts

A. What is Intangible Brand Capital?

We begin with the concept of a brand. For the purposes of this article, we focus on product brands as opposed to corporate brands, though in many settings the two are synonymous. For instance, Apple has a strong corporate reputation as an employer as well as a strong consumer brand reputation. The historic practice of *branding* consisted primarily of the literal burning of a logo or mark of ownership on a firm's products. However, contemporary marketing experts define a brand more broadly as

> "…a name, symbol, design, or mark that enhances the value of a product beyond its functional purpose" where the added value of these enhancements to the basic product are often broadly termed "brand equity."
>
> Farquar *(1989, p. 24)*

Brand equity consists of the intangible capital that generates sustainable, incremental profitability to the firm owning the commercial rights to the brand. The expertise, or *human capital*, of the firm's employees in creating and maintaining such brand equity is a related critical economic competence.

Firms brand products through marketing programs that "teach consumers 'who' the product is – by giving it a name and using other brand elements to help identify it – as well as what the product does and why consumers should care." (Kevin L. Keller, 2020, p. 38). Effectively, branding arises from marketing investments that make consumers aware of the product and persuade them of its benefits and differences relative to the competition. These branding efforts establish psychological structures in the consumers' minds to help organize their product knowledge and make decisions. Branding can form associations in the consumer's memory that assist with recall and

consideration of the branded product. Branding can also generate perceived differentiation, tangible or intangible, between products.

In this article, we do not discuss the sophisticated strategic steps associated with the design of a brand architecture and its corresponding elements. We focus instead on the investments made to communicate and build intangible brand equity. These marketing communication instruments consist of *advertising*, *promotion* (e.g., in-store displays, samples and merchandising typically near the point of sale), *direct marketing* (e.g., mail, catalogues, and telemarketing), *personal selling* (i.e., salesforce), *events* (e.g., trade shows) and *public relations* (e.g., media relations, sponsorship etc). By one estimate, marketing budgets now represent almost 12% of companies' total budgets, on average, up by over 1 percentage point since 2012.[9] In consumer goods industries, marketing budgets regularly approach 25% of spending. In our analysis below, we focus primarily on advertising and promotional expenses, as these data are most readily available across firms. There are also good reasons to exclude other potential types of branding investment because direct marketing and personal selling can serve many other non-branding functions, including distribution and pricing.

In the following subsections, we document several recent trends in brand-related investments. In particular, we show that U.S. companies have accelerated their expenditures on advertising, a leading brand-building activity. These investments represent growth in a corresponding aggregate intangible brand capital stock. Over this same period, U.S. firms have also grown their recruiting and payroll shares on the employment of in-house marketing-related personnel.

B. Advertising and Aggregate Brand Capital

Advertising represents one of the leading instruments for brand investment. According to the most recent IRS Statistics of Income database, in 2018 U.S. corporations expensed $354 billion in advertising spending, 1.7% of GDP, near the historical average of 1.9%. Substantial as it is, this value does not even include spending on non-advertising-related brand investments (e.g., public relations, promotional transfers to retailers) nor branding investments made inside the firm (e.g., paying internal employees to design marketing strategies or manage customer accounts). By way of comparison, total tangible nonresidential investment in the national accounts has typically totaled around 13 percent of GDP. It is clear that marketing investments are an important part of firms' efforts to build their capital stocks.

In Figure 2, we use the IRS data to extend Corrado et al. (2016)'s advertising-driven brand capital series through 2018. We estimate the 2018 U.S. brand capital stock to be just over $350 billion, more than double the $160 billion estimated (real) stock in 1995. Given that real GDP roughly doubled over the same period, it suggests that advertising-driven brand capital has grown faster than the economy over the past quarter century.

[9] The CMO Survey: Highlights and Insights Report, February 2022, accessed at https://www.slideshare.net/christinemoorman/the-cmo-survey-highlights-and-insights-report-february-2022-251260121?from_action=save on March 3, 2022.

The size of the advertising-driven brand capital stock relative to advertising spending depends on two key assumptions: (1) the advertising spending capitalization rate and (2) the advertising capital depreciation rate. The advertising spending capitalization rate consists of the fraction of spending that builds capital that lasts beyond the current period to yield marginal revenue in future periods. The remainder is used up in production (the generation of revenues) in the current period, and as such represents an expense rather than an investment. Choosing the right capitalization rate is challenging. In practice, firms' brand spending may be a multiple of advertising, capturing other non-advertising sources of marketing, all of which can be incorporated into the capitalization rate. Similarly, the capitalization rate could also be set to capture the potential indirect effects of advertising, such as the reinforcing *feedback* effect of habit formation, brand loyalty and other persistent responses to advertising. On the other the other hand, many aspects of a firm's advertising may be transitory, such as the promotion of a temporary price discount or of a promotional product with only temporary distribution. Following Corrado et al. (2016), we assume the capitalization rate is 0.6.

The advertising capital depreciation rate measures the longevity of intangible brand capital stocks. Academics have debated the magnitude of this decay rate since at least the 1960s (see Comanor and Wilson (1979) for a survey). The debate has by no means been resolved, with some studies finding highly persistent effects and others failing to detect effects lasting more than a few weeks or months.[10] Taking a longer-term view of a consumer's lifetime brand experiences, Bronnenberg et al. (2012) estimate an annual brand capital depreciation rate of only 2.5% for a cross-section of over 230 Consumer Packaged Goods product categories. Perhaps this dispersion of estimates is not surprising as different forms of advertising may exhibit different degrees of longevity. A short-run price promotion may be quickly forgotten. Yet at the same time it is easy to think of brands—perhaps built through decades of past marketing investments—that now reside virtually permanently in consumers' minds without the need for a lot of explicit repeat prompting.[11] If we follow Corrado et al. (2016)'s assumption that advertising-driven brand capital depreciates at an annual rate of 55 percent, the calculated advertising capital stock is roughly the same size as current advertising spending in spite of the capitalization ratio and rapid depreciation rate.

Regardless of potential debate around the details, advertising spending and the resulting capital stock are substantial in size. This willingness to expend considerable resources on both the immediate and future effects of advertising indicates that firms perceive such expenditures as valuable. We look at this issue in more detail next.

[10] For example, in a cross-section of 55 randomized advertising field experiments for Consumer Packaged goods, Lodish et al. (1995) not only find that the effects of successful TV ad campaign persist more than 2 years, the longer-term magnitudes are more than double the immediate-run effects. On the other hand, using a cross-section of 432 digital display-advertising field experiments, Johnson et al. (2017)find that advertising decays rapidly at a rate of 23% per day. A meta-analysis of older econometric studies find that 90% of the long-run advertising effect (the "duration interval") materializes within 6-9 months (Leone 1995).

[11] In 2001, Coca-Cola was one of the most recalled SuperBowl ads in the Wall Street Journal-Harris interactive poll, even though Coca-Cola did not broadcast an ad that year.

C. Brand Valuations at the Firm Level

Measuring the full value of brand capital to a firm is notoriously difficult. Conceptually, the value should be defined relative to the counterfactual discounted sum of future profits to the firm *but-for* the commercial rights to the brand and its trademark. This counterfactual raises two challenges. The first challenge consists of the appropriate definition of the counterfactual. Do the brand and its trademarked brand elements cease to exist? If so, does the firm build or acquire a different brand instead in the but-for world? Or, does the brand get transferred to another (competitor) firm? Second, irrespective of the right counterfactual, in practice the but-for profit stream is seldom observed and needs to be imputed or estimated.

Commercial vendors do attempt to compute brand value metrics, and these are widely used by companies in practice. Each vendor uses slightly different methods, but they all involve a mix of forecasts and judgment. We focus on the method used by the vendor BrandFinance that seeks to estimate the net present value of royalties received from owning a brand, which is close in spirit to the but-for reasoning above.[12]

Figure 3 shows two representations of the value from 2007-2021 of the 100 most valuable brands in the world, as computed by BrandFinance.[13] The left panel presents the joint value in US dollars, while the right panel normalizes this value by the firms' reported joint value of property, plant, and equipment (PPE). The total brand value represented by these 100 most valuable brands is $4.14 trillion in 2021 (more than the entire tangible capital stock of Belgium) and has been growing at an average annual growth rate of 8.1%. The right panel shows that brand value rose from 29% of PPE in 2007-2009 to 47% of PPE in 2018-2020. This increase reflects an annual growth rate of 4.8%, although this average masks periods of contraction after the Great Recession and at the start of the Covid-19 pandemic.

Even allowing for considerable measurement error, these numbers are still strikingly large and indicate the importance of brands to the companies that own them. They are also rising faster than GDP and the companies' reported tangible capital. Finally, we find similar patterns even if we restrict our attention to the subset of U.S.-based brands.

Naturally, these measures depend on a number of strong assumptions, not to mention the fact that we have selected the world's most valuable brands. Nevertheless, other recent research

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[12] BrandFinance first assembles a database of observed royalty rates from industry reports. It divides this range into 100 parts. Second, it selects a value from this range, guided by a proprietary brand strength index, much like a credit rating, that combines the estimated strength, risk, and future potential of a brand relative to its competitors. This brand strength index is scaled from 0 to 100. If a brand's score is X, the brand specific royalty rate is chosen to equal to maximum value of the X^{th} increment. Third, to compute the net present value of royalties, BrandFinance's valuation method estimates future revenues from historic revenues, equity analyst forecasts, and economic growth rates, and applies the royalty rate to this forecast. Finally, the post-tax forecasted royalties are discounted to a net present value. For details, see https://brandirectory.com/methodology. For additional information, see ISO Standard 10668 "Brand valuation."

[13] For the sake of comparison, we obtained similar brand valuations for the top 100 global brands from 2007-2021 from another leading vendor, Interbrand (see, https://interbrand.com/best-global-brands/). While there are some differences, the correlation between the valuations by BrandFinance and Interbrand is 0.88.

confirms this large value of brand capital, finding that intangible brand capital stocks may represent between 6% and 25% of a firm's overall book value using publicly traded U.S. companies (Belo, Gala, Salomao, & Vitorino, 2022). In a detailed econometric case study of the stacked chips category, Borkovsky et al. (2017) measure Pringles' brand value at $1.6 billion in 2006, nearly 60% of the sale price of the Pringles company in 2012, $2.7 billion.[14]

In sum, brand capital stocks constitute and economically large intangible asset to companies. Furthermore, we find that these intangible assets have been growing over time, in spite of mixed findings in the contemporaneous advertising literature regarding the incremental effects of local changes in advertising spending on sales.

D. Labor and Marketing Expertise as Human Capital

Historically, most companies outsourced the creation of brand capital to consulting firms and advertising agencies. According to the 2022 CMO Survey, approximately one third of companies' digital marketing is handled by third parties.[15] We now document a recent trend of in-sourcing brand marketing and the creation of the highly understudied source of internal marketing expertise, an overlooked source of human capital.

We use the OEWS data from the BLS to measure corporate investment in internal marketing. Table 1 reports the labor share and payroll share associated with managers who most closely oversee brand capital: sales, marketing, and PR managers (SOC codes 11-2XXX). We use the years 2005, 2012 and 2019 because occupation codes were reported at a less granular level prior to 2005.

We observe a strong upward trend in marketing personnel both in terms of headcount and payroll share. Payroll share levels are higher, as marketing professionals tend to be white-collar management positions. With the exception of a headcount decline in the Accommodation and Food Services industry, all other industries experienced double-digit growth rates between 2005 and 2019, with the overall economy experiencing 86% growth in marketing managers' labor share and 119% growth in their payroll share. This growth was not simply due to overall expansion in managerial positions but instead reflected the increasing importance of brand management within them. From 2005 to 2019, marketing headcount grew from 8.8% to 9.6% of total management headcount, and marketing payroll share grew from 9.8% to 11.2% of total management payroll (total management includes SOC codes 11-XXXX).

These trends coincide with a growing push towards in-sourcing marketing decisions and capabilities. A recent survey by the Association for National Advertisers finds that 60% of U.S.

[14] The brand value was measured relative to a counterfactual market simulation in which Pringles is stripped of its brand equity today but is permitted to invest in building another brand in the future.
[15] The CMO Survey: Highlights and Insights Report, February 2022, accessed at https://www.slideshare.net/christinemoorman/the-cmo-survey-highlights-and-insights-report-february-2022-251260121?from_action=save on March 3, 2022.

companies have some form of internal marketing, and 42% of advertisers have in-house agencies.[16] These trends suggest a departure from the traditional model of partnering with advertising agencies to outsource branding and creative services along with the purchase of advertising media. These trends appear to be less pronounced in B2B industries, however, where out-sourcing still predominates.[17]

III. Brand Capital Investment Theories

Brands would likely exist even in the absence of systematic advertising or other corporate investments in brand-building. As we discuss below, consumers frequently rely on a brand's reputation or its trademarked elements, such as logos and colors, to help identify reliable and/or high-quality products and services. We now discuss established academic theories regarding a firm's private benefits from investments in branding, such as advertising and promotion, that potentially explain the magnitude of economy-wide marketing investments reported in section II.

Not all advertising and marketing contribute per se to a persistent brand capital stock. For instance, some advertising serves purely to inform consumers about transitory information, as in the case of newspaper feature advertising of a temporary discount at a retail outlet. While these discounts may generate feedback effects, for instance through brand-buying habits, we focus herein on marketing that contributes directly to persistent brand capital stocks.

We discuss various mechanisms through which marketing investments affect consumer demand and industrial market structure along with the persistence in these effects, reflecting the role of marketing-related intangible capital stocks. We focus on three mechanisms suggested in the literature: (1) reputation and the role of prestige and/or quality, (2) the reduction in transaction and search costs, and (3) competition and the role of strategic interaction and investment escalation. We refer the interested reader to Bronnenberg and Dubé (2017) and Bronnenberg et al. (2019) for more comprehensive discussions of the academic literature on the economics of brands and branding. Additionally, Aaker (1991) and Keller (1992) offer rigorous treatments of the perceptual representation of brands in a consumer's memory.

A. Brand Reputation

Consumers often face incomplete information about a product's quality prior to purchase and consumption. They may prefer branded goods with which they are familiar or that have a reputation for supplying high quality products. In equilibrium, such brand-related reputations can emerge if consumers have a willingness to pay for quality and if a firm with a strong reputation is incentivized to continue to supply high-quality goods in the future to maintain its price premium.

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[16] See "Is It Time to Bring More of Your Marketing In-House?" July 31, 2018, accessed on 2/3/2022 at https://www.bcg.com/publications/2018/time-to-bring-more-your-marketing-in-house; and "ANA survey finds 42% of advertisers have in-house agencies," accessed on 2/3/2022 at https://www.ana.net/content/show/id/509.
[17] "Nearly Two-Thirds of B2B Companies Outsource Marketing," May 28. 2020, accessed on 2/3/2022 at https://www.rightsourcemarketing.com/marketing-strategy/why-two-thirds-b2b-companies-outsource-marketing-2/.

> *"...economists also have long considered "reputations" and brand names to be private devices which provide incentives that assure contract performance in the absence of any third-party enforcer (Hayek 1948, p. 97; Marshall 1949, vol. 4, p. xi)."*
>
> Klein and Leffler *(1981, p. 616)*

Whether for packaged goods sold in supermarkets, retail gasoline or hotels, consumers routinely pay a price premium for branded goods even when cheaper alternatives are available. When a firm fails to deliver high-quality service, it may actively conceal this reputation by changing its name (e.g., McDevitt 2011).

Of interest are a firm's private incentives to invest in the creation and maintenance of a brand through marketing. For instance, the firm may seek to communicate and promote the brand and its reputation to a broader audience for awareness purposes. In some instances, the advertising itself may convey objective information about a product's quality.

However, most forms of brand advertising convey little or no objective quality information other than a reminder of the brand. One popular explanation for the prevalence of such uninformative advertising is that the advertising investment itself *signals* a brand's quality in equilibrium if high-quality firms derive higher returns from branding than low-quality firms. Similarly, if more efficient firms derive higher returns from branding, consumers may prefer advertised brands because of the signal of higher efficiency and, hence, better deals. However, attempts to test these signaling theories empirically have delivered mixed results, with little evidence of a correlation between product quality and advertising effort. One interesting exception comes from a field experiment for an online restaurant platform that finds the mere disclosure that a restaurant link is a paid ad increases demand for the advertised restaurant (Sahni and Nair 2019).

Another explanation for uninformative advertising is that consumers derive consumption utility from the brand itself. According to this *persuasion* or *prestige* view, marketing expenditure in advertising and other forms of branding can create a consumable intangible service (e.g., prestige, lifestyle) that is complementary to the branded good or service (Becker and Murphy 1993; Kamenica et al. 2013). For instance, Kamenica et al. (2013) find that exposure to advertising for a branded antihistamine causes an increase in the rate at which the drug counteracts a histamine – a physiological advertising effect.

A more cynical view of uninformative advertising is that it persuades consumers to perceive spurious differentiation between products, potentially causing spurious sources of loyalty (and for the sellers, market power). For instance, branded headache medicines generate higher total revenues and are typically sold at a significant price premium over objectively identical store brands that differ only in terms of brand name and branding elements. Meanwhile, pharmacists and physicians are considerably more likely to choose store-brand headache medicines than socio-demographically similar consumers who lack the healthcare domain expertise to realize the lack of objective differentiation (Bronnenberg et al. 2015).

B. Reductions in Consumer Transaction Costs and Search Frictions

In many shopping contexts, consumers incur various transaction costs prior to making a decision. These costs can be internal (e.g., thinking and deliberation) or external (e.g., browsing and research). They include search, comparison, examination, negotiation, ordering and payment, delivery, and post-purchase service and support (Liang and Huang 1998). These transaction-related costs can consume considerable time and money.[18]

A reason for consumers to choose branded goods is that they are less costly to consider and evaluate. The ability to recognize a brand and recall associated product information about the branded good from memory can help a consumer avoid many of these transaction costs. This information could include quality, product attributes or the likely price being charged. It may be triggered through recall and memory if, for instance, branding helps a consumer recall past experiences with a branded good. Alternatively, this information may be conveyed directly through the branding elements. For instance, the strong effect of tobacco packaging color on consumers' perceptions of the quality of the tobacco led Australia to implement a *plain packaging* regulation requiring all sellers to adopt a common, drab-brown packaging color.[19] It follows that investments in brand advertising can generate a persistent reduction in transaction costs by increasing the prominence of a brand in a consumer's memory, or making it "top-of-mind," thereby facilitating access to this information.

For instance, advertising has been found to increase the likelihood of being considered by consumers at the point of sale (e.g., Draganska and Klapper 2011). Consumers are also more likely to direct their search to more prominently branded retailers (e.g., Baye, De Los Santos and Wildenbeest 2016) and may be more likely to click on firms with more prominent positions in search results on an online platform (e.g., Ursu 2018). In principle, the long-term effects of branding on transaction costs could be self-reinforcing if consumers are more likely to consider and purchase branded goods, thereby establishing persistent *consumption capital* (or habits) for those goods.

C. Competition and Equilibrium Brand Investment

Thus far, we have discussed a firm's incentives to invest in branding from the perspective of the monetizable equity the brand creates for consumers and demand. We now turn to equilibrium theories of branding and the strategic incentives on the supply side for brand investments. In particular, strategic considerations can stimulate and deter branding efforts.

The strategic incentives for branding depend on the nature of marketing productivity and the returns to branding. Constant (or even increasing) returns to branding that can sustain a high

[18] For instance, according to the 2019 US time-use survey, consumers spend 0.75 hours per day purchasing goods and services on average. This corresponds to 1.71 hours conditional on incidence. See, e.g., https://www.bls.gov/tus/a1-2019.pdf. Similarly, an empirical literature on consumer search has routinely estimated large search costs (e.g., Honka 2014, Kim et al. 2010).

[19] See Commonwealth of Australia. Tobacco Plain Packaging Act 2011. No. 148, 2011, section 19(2)(b)(ii) accessed on 3-1-2022 at https://www.legislation.gov.au/Details/C2011A00148/Html/Text#_Toc309642368.

marginal impact of these investments even at high levels of investment can lead to an escalation in advertising or other forms of marketing in equilibrium.

We start with constant returns to scale in branding. In the special case where the impact of branding expenditures on demand for the branded good does not affect the own-price elasticity, we obtain the classic Dorfman-Steiner result: the optimal advertising-to-sales ratio equals the ratio of the advertising elasticity to the own-price elasticity. One positive implication of this result is that more competitive firms have less incentive to invest in branding. However, this prediction hinges on the dubious assumption that advertising does not affect the price elasticity of demand.

We now consider the case of economies of scale in branding and the potential for escalation. Suppose branding expenditures are endogenously chosen by the firm, but are fixed and sunk. If the corresponding brand capital increases demand, strategic interaction can lead to an escalation in marketing investments that creates barriers to entry, sustaining market power and concentration (Sutton 1991). As market potential increases, we would expect an escalation in brand spending without a corresponding escalation in entry, meaning that even as the market becomes very large, only a small number of branded goods dominate while charging a price premium. The escalation in advertising may be even higher if early entrants use their branding to preempt future entry by a rival.

Such outcomes have been documented extensively in the global CPG industry, where the typical category has been dominated by the same small set of established brands for decades, with early (surviving) entrants typically sustaining a higher share than later entrants (e.g., Sutton 1991, Bronnenberg et al. 2011). Interestingly, with the rapid shift away from traditional television advertising to increasingly targetable and personalizable digital advertising, we may observe a disruption to the market structure of consumer goods industries.[20] Whereas television advertising is mostly borne as a fixed and sunk cost, digital advertising is typically borne as a marginal cost, which can theoretically lead to fragmentation with a large number of small (low-advertising) brands.[21] Indeed, over the past decade, many CPG categories have begun to fragment as new local *craft* brands have begun to steal share from established brands, as observed in the beer industry for instance (e.g., Elzinga 2011 and Bronnenberg et al. 2022).

When advertising is primarily *combative*, shifting share from one competitor to another in a tug-of-war, firms may find themselves in a prisoner's dilemma. The escalation in advertising can be exacerbated by the fact that, in addition to the direct incentive to increase one's market share, firms also face the strategic incentive to defend against a rival's advertising. In some instances, firms may see no net change in their market shares in equilibrium, in spite of the large advertising outlays. Such prisoner's dilemmas have been documented in both laboratory settings (e.g., Corfman & Lehmann 1994, Chen et al. 2009) and in the OTC analgesics market (e.g., Anderson et al. 2016).

Interestingly, market forces can also deter firms from investing in branding when there are positive externalities to other firms. For instance, one firm's advertising may increase awareness for

[20] According to the 2022 CMO Survey, digital marketing now accounts for 57.1% of marketing budgets.
[21] Most television advertising is purchased in an up-front market, months before the airing of the ad and the sale of the product. On the other hand, digital ads are typically targeted to individual consumers contemporaneously as they browse and evolve towards the purchase decision (the so-called *purchase funnel*).

the entire category, generating positive spillovers to rivals. In this case, firms may free-ride off one-another's brand capital without internalizing the benefits their advertising generates for rivals. Such spillovers have been documented empirically in the market for anti-depressants (Shapiro 2018), statins (Starc and Sinkinson 2018) and on digital platforms for restaurant delivery (Sahni 2016). Shapiro (2018) finds that advertising would increase 50% in the anti-depressants market if firms hypothetically cooperated on their advertising.

IV. Marketing and Social Welfare

In the previous section, we discussed the mechanisms through which companies are privately incentivized to invest in building and sustaining brand capital. We have also demonstrated that brand capital stocks are economically large and of macroeconomic relevance. We now turn to the divisive academic debate regarding the social benefits of brands and brand investments. While most of the debate has focused on advertising specifically within broader brand-building marketing efforts, the economic incentives for advertising are not distinct from the incentives to invest in other communication strategies to build brands.

A. The Persuasive View

Since at least the early 20th century, many economists have speculated that advertising is mostly combative and, therefore, socially wasteful. Under this *persuasive view,* advertising conveys information from an "interested" party, thereby providing little objective value and mostly creating spurious perceived differentiation and loyalty (e.g., Marshall 1919, Kaldor 1950, Galbraith 1958, Solow 1967). Indeed, consumers are often empirically unable to identify their preferred brands in blind taste tests (e.g., Husband and Godfrey 1934; Thumin 1962; Allison and Uhl 1964) and, in some instances, prefer a cheaper store brand (e.g., Bronnenberg et al. 2020). Furthermore, such persuasive advertising can generate barriers to entry (Bain 1955) that sustain high prices and reputational monopolies (Braithwaite 1928). Economies of scale in branding would bolster these barriers to entry. In short, under the persuasive view, advertising is necessarily excessive because it decreases welfare: facilitating higher prices with no objective increase in consumer utility.

Empirically, established advertised brands have persistently dominated CPG markets for at least half a century, with the earliest entrants out-performing later entrants (Bronnenberg et al. 2009). Similarly, equilibrium advertising levels escalate in larger geographic markets, with no corresponding increase in the number of branded competitors (Bronnenberg et al. 2007). According to the FDA, generic prescription drugs are typically 80%-85% cheaper than the equivalent branded drug.[22] Bronnenberg et al. (2015) estimate that consumers would save $44 billion annually simply by switching to store-branded consumer packaged goods. In 2003, a U.S. Department of Health and Human Services report concluded that patients could reduce their daily drug costs by 16% if they switched to generics. This corresponds to an economy-wide saving of $17 billion.[23] Meanwhile, it is often difficult to wean consumers off premium-priced branded goods even when a cheaper,

[22] "Generic Drugs: Questions & Answers,"Accessed on 2/3/2022 at https://www.fda.gov/drugs/questions-answers/generic-drugs-questions-answers#q4.
[23] "Increasing Generic Drug Utilization: Saving Money For Patients," May 18, 2005, accessed on 2/3/2022 at https://www.govinfo.gov/content/pkg/CHRG-109hhrg21639/html/CHRG-109hhrg21639.htm.

physically comparable alternative is available. For instance, the provision of objective information about the comparability of the cheaper variant may have not be sufficient to switch consumers away from the established brand (e.g., Cox 1983, Carrera and Villas-Boas 2015, Bronnenberg et al. 2020).

B. The Informative View

During the 1960s, a competing *informative view* of advertising emerged, led primarily by the Chicago school (Stigler 1961, Telser 1964). Advocates argued that advertising communicates valuable information about the product and its attributes. To the extent that advertising reduces consumer search and evaluation costs, it would be procompetitive, leading to less price dispersion and lower markups. Furthermore, advertising could facilitate entry and further toughen competition. Under the informative view, advertising can be socially beneficial by creating consumer value and potentially toughening price competition.

Empirically, there is some evidence of the welfare-improving potential of advertising. For instance, anti-depressant advertising has been found to increase prescriptions and most striking, to decrease workplace absenteeism (Shapiro 2020). Similarly, advertising during U.S. presidential elections may have a large effect on voter turnout, stimulating *political participation* (Shachar 2009, Gordon and Hartmann 2013). In fact, statins advertising by branded incumbents has been found to facilitate entry by unbranded generic competitors (Starc and Sinkinson 2018).

There is also evidence that the reputational benefits of branding may be welfare improving. Bai (2018) finds that introducing a branding technology in the market for watermelons quickly led to higher quality in equilibrium. Similarly, biosimilar branded and branded generic drugs in Chile were found to be of much higher quality than cheaper unbranded alternatives (Atal et al. 2022). Surprisingly, regulations that limited entry of low-quality biosimilars increased consumer welfare in spite of leading to higher prices.

C. The Complementary View

A more recent stream of literature takes the *complementary* view of advertising, whereby the consumer derives consumption utility from the brand and branding itself, even if the advertising conveys no objective information (Becker and Murphy 1993). Empirically, consumers who have recently purchased a branded good are more likely to watch (consume) ads for that good instead of skipping them (Tuchman et al. 2018). A similar complementarity was documented between Superbowl advertising for a given brand and subsequent consumption of that brand during future sporting events (Hartmann and Klapper 2018). In fact, in a controlled experiment, television advertising for a branded antihistamine was found to improve the physiological reversal of a histamine reaction in response to the drug (Kamenica et al. 2013).

The welfare implications of advertising are more ambiguous under the complementary view, which treats advertising as a consumption good in and of itself. However, Becker and Murphy (1993) show that if advertising decreases the equilibrium price of the advertised good, then the market is under-supplying advertising. Intuitively, this *test* would indicate that firms are not taking into account advertising's ability to increase willingness-to-pay for the advertised good when

deciding their marketing spending. Conversely, even if advertising increases equilibrium prices, it need not be socially excessive as long as it creates enough consumer value.

V. A Roadmap for Future Research

We see at least three potentially valuable directions for future research on the economics of brand capital.

A. Agency and Conflict of Interest

The manner in which a firm's communication activities are delegated to internal teams and external consultants indicates some clear conflicts of interest. Many firms rely on external advertising agencies to not just buy and allocate advertising media, but also to evaluate the performance of the ads. This joint duty of purchasing and auditing performance of advertising raises a clear conflict of interest. The consulting firm has little incentive to report that advertising does not work. Other firms assign a marketing budget to an internal team to conduct the media buying and performance evaluation. To the extent that budgets determine internal power and influence, or indeed team size, once again there is a conflict of interest. A marketing team has little incentive to report that advertising is ineffective. Even if those in charge of the marketing budget do not literally obfuscate negative evidence, they face little incentive to invest in more reliable methods.

For instance, Blake et al. (2015) show how simple OLS estimation suggests the presence of strong and significant effects of eBay brand keyword search advertising, implying an ROI of over 1000%. The confirmation bias would likely deter a marketing team from exploring alternative methods to assess the robustness of their OLS evidence. In fact, more reliable experimental evidence found paid brand keyword search advertising at eBay to have a very small effect on demand, with over 95% of that effect consisting of cannibalization of traffic to eBay that would have come free through the organic channel but for the advertising.[24] The true ROI was approximately –75%, and eBay subsequently terminated its brand keyword search campaigns for which it had invested $30 million in 2010 alone.

While striking, the eBay case study is unsurprising in light of the extant advertising literature. Empirically, the long empirical literature measuring advertising's effect on demand has routinely documented mixed results. Aaker and Carmen (1982) speculate that some of these mixed findings reflect a tendency for established brands to over-invest in advertising, with some of the budget spent on wasteful and ineffective branding. To the extent there are diminishing returns (e.g., the potentially informed population of prospective consumers has been saturated), one might expect to find little or no effect of local changes in advertising for established brands already in possession of

[24] Essentially, eBay was paying search engines to place their site at the top of the search list when browsers searched for "ebay," even though the site would have certainly also been at the top of the list of "organic" (not-paid-for) search results.

large, intangible brand capital stocks.[25] Indeed, Shapiro et al. (2021) find small and mostly insignificant advertising effects for almost 300 of the top-advertised consumer brands. In contrast, using randomized television advertising experiments, Lodish et al. (1995) find much larger television advertising effects for new products, often persisting several years after a campaign. Given the long-standing expertise of CPGs in advertising, it is indeed surprising to find widespread investment in ineffective advertising, pointing towards the agency theory for advertising spending.

The mixed results are not merely an artifact of the CPG industry. Shapiro (2016) finds a precise null effect of advertising for health insurance in spite of the on-going public policy push to regulate or even ban such advertising. Further, these effects do not appear to be the mere effect of a prisoner's dilemma. Simonov, Nosko and Rao (2018) generalize the cannibalization effect of branded keyword search advertising by conducting randomized field experiments for the 2,500 most searched brands on the Bing search engine.

Of course, these studies raise some questions about the appropriate capitalization rate to assign to advertising spending.

B. Productivity and Growth

As discussed above, firms clearly view brand capital (and the associated human capital) as beneficial. In this section, we conceptualize that value within standard production theory.

Firms use brand capital as an input into production, just as they use physical capital. Brand's contribution to output is not physical, however. Instead, its marginal revenue product comes from its ability to raise consumers' willingness to pay for the firms' outputs. This increase in demand can come on either the extensive or intensive margins, and it can come through either the aforementioned information/awareness channel or the prestige or complementary channels.

With this conceptualization, we can apply many of the standard results of production theory to the analysis of brand capital inputs. For example, in a static world, a firm should apply/rent brand service flows up to the point where the marginal revenue product of those service flows equals their user cost rate. The marginal revenue product, as just discussed, is the additional willingness to pay induced by the application of brand capital. The user cost is a combination of the interest rate and the depreciation rate. Given that depreciation may be quite large for brand capital, the implied user cost is also high. Dynamics likely apply, however; brand capital is quasi-fixed and investment may involve adjustment costs. In that case, results from investment theory apply.

While there is a tight analogy between brand capital and tangible capital in theory, the gap is larger in practice because brands' roles are almost inevitably unmeasured in production analysis and

[25] There are of course examples of large advertising effects, including for established brands. For instance, Superbowl Ads, one of the most expensive and controversial forms of advertising, have been found to increase sales for branded consumer goods and for movies (Stephens-Davidowitz et al. 2017, and Hartmann and Klapper 2018).

as such are treated as intangible. This practice has implications for measures of productivity, a common metric of firm performance.

At the most basic level, every productivity measure is a ratio of output to input. When firms use an intangible input like brand capital, standard productivity measures (constructed only using tangible outputs and inputs) capture the output that the intangible creates but do not count the intangible among the inputs in productivity's denominator. As a result, productivity is overstated. The marginal product of the intangible is instead attributed to productivity. In this way, companies with a large amount of brand capital (and/or a high elasticity of output to brand) will have high measured productivity, though measured productivity exceeds the firm's true (intangible-adjusted) productivity level. Given the enormous variations in measured productivity among firms even in narrowly defined markets, it is possible—and in some markets probable—that some of this variation is coming from differences in the size or efficacy of firms' brands.

One nuance here is in how output is measured. As noted, brand does not lead directly to more physical output per unit of input (or for service-producing firms, more countable units of anything). Instead, it raises the prices at which those units are sold. Thus, quantity-based measures of productivity will not capture the effect of brand on output, while revenue-based measures will. See De Loecker and Syverson (2021) for a broader discussion of the respective strengths and weaknesses of quantity- and revenue-based productivity measures.

The discussion to this point takes brand capital as installed and considers its effect on production and measured productivity. However, there is another important aspect of brand capital and production. When brand investments are first made, they are (conceptually) an output of the firm, as would be the case for firms making any type of tangible investment good. Firms apply their labor and capital inputs to make investments in their brand, and those that are long-lived are capital outputs. However, when these are intangible, they are not measured as output despite the fact that the firm's inputs have been applied to creating them. In this way, investments in brand capital cause productivity to be understated. The firm looks like it is employing many resources without obtaining a lot of output from them, but in reality that output is not being counted. Thus, opposite the case of brand capital that has already been installed as an input, when brand capital is first produced it causes measured productivity to *understate* the true productivity level of the firm.

The net effect on measured productivity of these two offsetting issues depends on the relative size and timing of firms' brand investments and installed stocks. Brynjolfsson, Rock, and Syverson (2021) discuss this and related effects of intangible capital on productivity measurement more generally.

C. Alternative Sources of Intangible Marketing Capital

Our discussion herein focused narrowly on communication investments to build and maintain intangible brand capital. The practice of marketing is, of course, broader in scope with many opportunities to invest in intangible capital that are not captured by brands and branding. One source of marketing intangible capital consists of relationships between manufacturers and consumers forged by non-branding investments.

Firms invest to create and maintain relations with their customers in many ways other than branding, such as investments in customer relationship management (CRM) systems. At the extensive consumer margin, CRM acquires new customers. But CRM also impacts the intensive consumer margin through upselling and cross-selling. Such CRM effects take the form of incentives, convenient transactions, and information about what the firm offers. Foster et al. (2016) are among the first to study how demand side fundamentals, such as multi-year efforts to build a customer base (i.e., create customer relationships), explain the slow growth of new plants in commodities industries. The properties of such a customer base, or "demand stock" (p. 97), and how it is affected by investments in marketing remain an open question.

In addition, consumption itself is an important source of intangible capital and manufacturer/consumer relations. Consumers form preferences for products they have consumed in the past (e.g., Bronnenberg et al. 2012, Atkin 2013), and for products consumed by their parents (Anderson et al. 2015). Moreover, such consumption capital can lead to the formation of preferences that in turn bring important advantages to firms (Bain 1956). However, not much is known about the moderating effect of marketing investments on the formation of consumption capital throughout a consumer's lifetime. Bronnenberg et al. (2022) link current consumer preferences for craft beers to historical local availability and distribution, while Atkin (2013) documents that past prices of staple foods impact current preferences. These examples are suggestive of the idea that non-branding investments in marketing may initiate and help form long-lived relations between firms and their customers. Clearly more study is needed.

VI. Conclusions

We have provided evidence of the large economic magnitude of intangible capital and its recent growth. In addition, we have demonstrated the growing role of marketing personnel both in terms of headcount and payroll share in U.S. companies. In spite of their magnitude, the economics literature has largely overlooked the role of branding and marketing human capital for our understanding of markets and their organization as well as firm productivity and macroeconomic growth. We discussed the established wisdom for how brand capital is formed and firms' incentives to invest. We also acknowledge the potential for some branding efforts to be socially wasteful. However, we also see ample scope for a welfare-improving role of brand capital through its ability to facilitate consumer search and evaluation. Furthermore, we see reasonable potential for brands and branding to offer more than mere transaction services; in some instances they create genuine consumption benefits.

The productive benefits of brand capital and the human capital associated with marketing expertise are not currently considered in standard productivity measurement. This omission would likely under-state productivity at the time marketing investments are made, while over-stating subsequent productivity when marketing investments pay off through increased consumer demand. Herein, we focus primarily on branding – marketing communications like advertising. However, marketing practice also spans much broader functions in distribution and front-facing relationships with consumers, generating additional potential sources of intangible capital.

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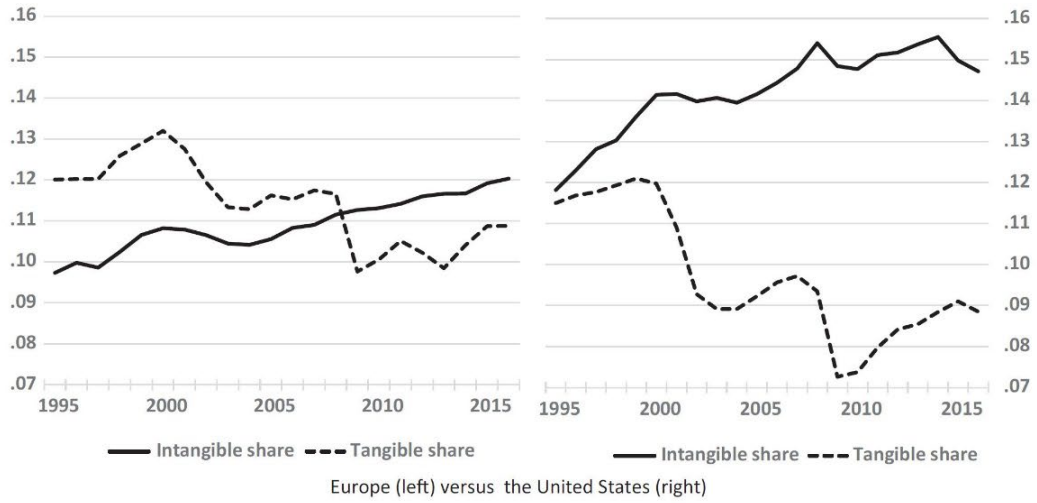

Figure 1: Intangible and Tangible Investment Share
Source: Corrado et al. (2020), Figure 16.2.

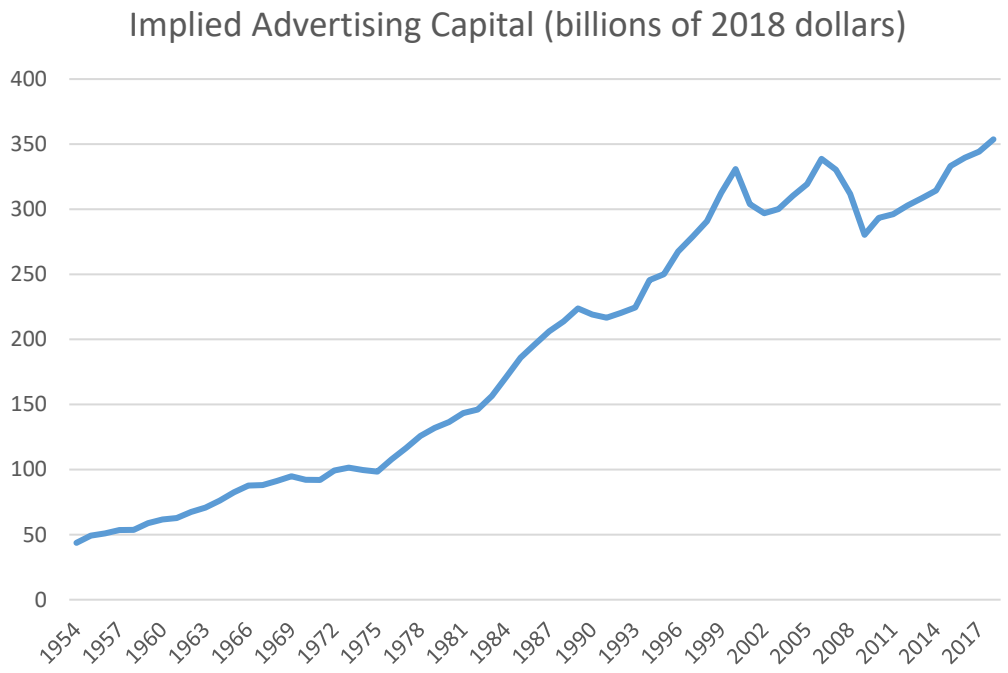

Figure 2: Implied Advertising-Driven Brand Capital Stock
Source: Corrado et al. (2016) and authors' calculations using IRS Statistics of Income data

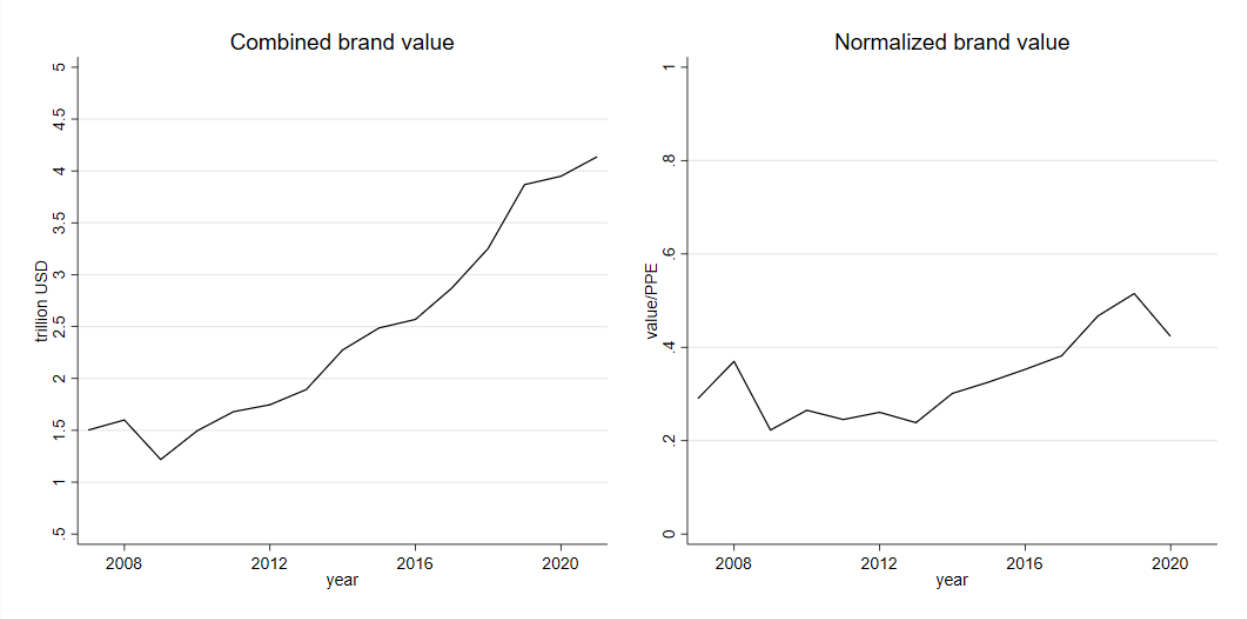

Figure 3**:** Brand value and normalized brand value for the 100 most valuable global brands

	2005	2012	2019	2005	2012	2019
	Employment			Payroll		
All Economy	**0.28%**	**0.46%**	**0.52%**	**0.70%**	**1.21%**	**1.41%**
Agriculture, Forestry, Fishing and Hunting	0.05%	0.08%	0.09%	0.19%	0.36%	0.33%
Mining, Quarrying, and Oil and Gas Extraction	0.17%	0.32%	0.32%	0.32%	0.69%	0.75%
Utilities	0.11%	0.50%	0.51%	0.21%	0.89%	0.96%
Construction	0.05%	0.10%	0.14%	0.11%	0.23%	0.30%
Wholesale Trade	1.20%	1.56%	1.83%	2.87%	3.84%	4.39%
Information	0.93%	1.69%	2.03%	1.93%	3.56%	4.10%
Finance and Insurance	0.48%	1.02%	1.11%	1.09%	2.35%	2.44%
Real Estate and Rental and Leasing	0.33%	0.47%	0.53%	0.79%	1.32%	1.38%
Professional, Scientific, and Technical Services	0.42%	0.99%	1.49%	0.82%	1.90%	2.77%
Management of Companies and Enterprises	1.42%	3.21%	3.29%	2.57%	5.67%	5.91%
Administrative, Support, and Waste Mgt Services	0.23%	0.26%	0.33%	0.65%	0.80%	1.06%
Educational Services	0.01%	0.11%	0.17%	0.02%	0.21%	0.35%
Health Care and Social Assistance	0.01%	0.08%	0.09%	0.03%	0.15%	0.20%
Arts, Entertainment, and Recreation	0.22%	0.41%	0.42%	0.58%	1.13%	1.24%
Accommodation and Food Services	0.10%	0.09%	0.07%	0.32%	0.33%	0.28%
Other Services (except Public Administration)	0.19%	0.46%	0.57%	0.45%	1.30%	1.69%
Federal, State, and Local Government	0.01%	0.06%	0.07%	0.01%	0.11%	0.11%
Manufacturing	0.35%	0.59%	0.59%	0.89%	1.54%	1.58%
Retail Trade	0.44%	0.51%	0.51%	1.40%	1.59%	1.57%
Transportation and Warehousing	0.12%	0.19%	0.17%	0.26%	0.46%	0.44%

Table 1: Marketing Labor Share of Employment and Payroll.

OEWS data from the BLS. Marketing Labor is defined as sales/marketing/PR managers (occupation codes 11-2XXX).