The Strategic Effects of Trademark Protection: Internet Appendix*

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1 Data

1.1 Sample Construction

The sample consists of all U.S. firm-years in Compustat Annual North America from 1982-2005. We drop firm-year observations that have missing or negative sales, missing or negative market equity, and book assets missing or less than $1 million.

1.2 Trademark Data

Data on U.S. trademarks comes directly from the USPTO.[1] Altogether 4,201,205 trademarks were registered at the USPTO between 1870 and 2012. Figure IA1 plots the number of new trademark registrations per year, which shows remarkably steady growth over time.

As with patents, the USPTO does not maintain unique firm identifiers but only records the firm's name as specified on the registration. This creates a difficulty because there are often different abbreviations and punctuations that refer to the same firm (e.g. COCA COLA; COCA-COLA; COCA-COLA INC; THE COCA-COLA COMPANY; etc). Also, many firms have subsidiaries that hold trademarks (e.g. trademarks belonging to Toys R Us are held in subsidiary Geoffrey Inc.) We map trademarks in the year they were granted to Compustat firm-years using a variety of methods to ensure a comprehensive match. First, we collect all names of trademark grantees and run a fuzzy match to firm names from CRSP and Compustat and to parent and subsidiary firm names from CapitalIQ. We make use of the name-to-gvkey associations from the NBER patent database because many trademark assignees are also patent assignees (Hall, Jaffe, and Trajtenberg, 2001). We double-check and supplement these four automated matches with manual verification and disambiguation. Finally, we manually match by firm and year. In total we map 521,997 trademarks to 14,703 Compustat firms.

1.2.1 Event Dates. Beginning in 1979 the trademark data contain dates for various events including opposition, renewal, and cancellation. For trademarks that expired prior to 1979 the data simply reports a 626 status code that indicates that the trademark was previously registered, but the actual expiry or renewal dates are not recorded. For these trademarks we assume the actual

[1] The data are described in detail in Graham, Hancock, Marco, and Myers (2013).

expiration date to be the earliest of 20 years after registration or Jan 1, 1979. For trademarks that were live in 1979 we track actual renewal, opposition, and expiry dates based on event data contained in the USPTO files.

1.2.2 Goods and Service Classes. The US goods and services classification system contains 52 different goods codes, 8 services codes, and 3 collective membership codes. While International classification codes have been the primary method of goods and services classification since 1973, the USPTO continues to assign US classification codes to trademarks registered after 1973, and use of the US codes prevents errors in classification occurring due to US-to-International code conversion for pre-1973 marks or changes to the International codes. We track active classes by firm-year directly by trademark registration, renewal and death dates.

1.3 Variable Definitions

- *logSales* is the natural log of one plus net sales/turnover (ln(1+sale)).
- *logAssets* is the natural log of one plus total book assets (ln(1+at)).
- *ROA* is the ratio of operating income before depreciation to total assets (oibdp/at).
- *MarketEquity* is market capitalization (prcc_f * csho).
- *BookEquity* is stockholders equity plus deferred taxes plus investment tax credit minus preferred stock redemption value (seq+txdb+itcb-pstrv). If stockholders equity is missing from Compustat we replace that value with common/ordinary equity plus preferred stock redemption value (ceq+pstrv) if present, and otherwise replace stockholders equity with total assets minus total liabilities (at-lt). All following Davis, Fama, and French (2000).
- *Market/Book* is the ratio of market equity to book equity (MarketEquity/BookEquity).
- *LogMarketBook* is the natural log of one plus the ratio of market equity to book equity (ln(1+MarketEquity/ BookEquity)). We use the log market to book ratio because the distribution of market-to-book ratios is strongly right-skewed.
- *Age* is the number of years since the firm's founding date according to the Ritter data[2] if available, otherwise the number of years since the firm's first appearance in Compustat.
- *Q* is from Peters and Taylor (2017).

[2]The Ritter IPO data can be found at Jay Ritter's website located at https://site.warrington.ufl.edu/ritter/ipo-data/.

- *BookLeverage* is the ratio of total long term debt plus total debt in current liabilities to total assets ((dltt+dlc)/at).
- *Ad/Sales* is the ratio of advertising expense to total sales (xad/sale).
- *R&D/Assets* is the ratio of research and development expense to total assets (xrd/at).
- *log(TMs)* is the natural log of one plus the number of new trademarks registered by a firm.
- *log*($TMs_{OldClass}$) is the log of 1 plus the fraction of new trademarks registered that are in novel classes relative to the firm's current active trademarks.
- *log*($TMs_{NewClass}$) is the log of 1 plus the fraction of new trademarks registered that are in novel classes relative to the set of classes in which the firm was ever active.
- *TrademarkStock* is the number of active trademarks currently held by a firm.
- *logTrademarkStock* is the natural log of one plus the number of active trademarks currently held (ln(1+TrademarkStock)).
- *ActiveClasses* is the number of USPTO U.S. goods and services classes spanned by a firm's active trademarks.
- *BrandExtending* is a dummy variable equal to one if a firm had at least one new trademark registered which was an extension of the firm's existing trademarks, where extension is measured by the full text of the existing trademark appearing in the new trademark. For example, "Ford Mustang" is a brand extension of the "Ford" trademark held by Ford Motor Co.
- *log(nRegistered)* is the log of one plus number of new trademarks registered in each of the 60 USPTO goods and services classes each year as measured by the trademark data.
- *log(nExpired)* is the log of one plus number of trademarks that expired in each of the 60 USPTO goods and services classes each year as measured by the trademark data.
- *log(nActiveTMs)* is the log of one plus number of live trademarks in each of the 60 USPTO goods and services classes each year as measured by the trademark data.
- *LernerIndex* is defined as the median by industry of operating profit (oibdp) over total sales (sale). This definition follows Aghion, Bloom, Blundell, Griffith, and Howitt (2005).
- *log(FirmEntry)* is the log of one plus number of new firms that enter each of the 60 USPTO goods and services classes each year as measured by the trademark data.
- *log(FirmExit)* is the log of one plus number of firms that exit each of the 60 USPTO goods and services classes each year as measured by the trademark data.

- *log(nActiveFirms)* is the log of one plus number of new firms that are active in each of the 60 USPTO goods and services classes each year as measured by the trademark data.
- *WasRenewed* is the percentage of new trademark registrations that were eventually renewed.
- *NewPatents* is the fNpats from Kogan, Papanikolaou, Seru, and Stoffman (2017).
- *log(NewPatents)* is the natural log of one plus the number of new patents (ln(1+*NewPatents*)).
- *Citations* is the number of subsequent weighted citations to all granted patents.
- *log*(*Citations*) is the natural log of one plus *Citations*.
- *log*(*PatentValue*) is the natural log of one plus Tsm from Kogan et al. (2017).
- *NewProducts* is the number of new products announced by a firm in the New York Times.
- *NewProduct* is a dummy variable equal to one if NewProducts > 0.
- *log(NewProducts)* is the natural log of one plus newProducts (ln(1+NewProducts)).
- *hadRecall* is a dummy variable equal to one if a firm initiated at least one recall.
- *Recalls* is the number of recalls which a firm initiated.
- *log(Recalls)* is the natural log of one plus the number of recalls (ln(1+Recalls)).
- *Units* is the number of units recalled.
- *log(Units)* is the natural log of one plus the number of units recalled (ln(1+Units)).
- *log(RecallValue)* is the natural log of one plus the dollar value of the recalled goods from recalls a firm participates in (ln(1+value of the recalled goods)).
- *Voluntary* is the fraction of the firm's NHTSA recalls that were initiated by the firm.
- *FractionTreated* is the fraction of trademarks in USPTO class i as of 1995 that were treated by the FTDA, standardized to have zero mean and unit variance.
- *plantbirth* is the number of new plants created post FTDA per the synthetic Longitudinal Business Data set.[3]
- *nPlants* is the number of firms per industry in the synthetic Longitudinal Business Data set.

[3]The Synthetic Longitudinal Business Database is based on the restricted-use microdata on economic activity collected in the Longitudinal Business Database surveys. The synthetic data product allows researchers to access aggregated forms of economic data while still protecting survey participant anonymity.

2 Robustness Checks

2.1 Alternative Definitions of Treated Status

The main challenge for our research design is identifying which trademarks were famous and therefore which firms were plausibly affected by the FTDA. Our main estimates require that a trademark was registered by 1974 and was still active on January 16, 1996 to qualify as plausibly famous. While this criterion has the benefit of simplicity it has at least two limitations. First, this "21-year" criterion results in treated firms being significantly older on average than control firms. This difference does not appear to drive our results, which we find are robust to controlling for firm age and to matching on age as well (see Section 2.4 in this Appendix). Second, the 21-year criterion wrongly classifies trademarks and firms that were registered later than 1974 but became famous by 1996. Examples include Microsoft (1975), Apple Computer (1976) and Costco (1983), all of which are classified as control firms in our main specification, but which clearly held famous trademarks as of 1995 that were plausibly affected by the FTDA. To examine the robustness of our identification, we examine two alternative classifications using entirely orthogonal criteria.

2.1.1 Google Books. First, we use the Google Books API.[4] We classify a trademark as famous if A) it is not a common dictionary word or phrase and B) it was mentioned in fiction or non-fiction books published in five out of five years (1991-1995) prior to the FTDA's passage. The Google Books classification avoids the requirement for treated trademarks and firms to be of a minimum age. In particular, all three example firms that were incorrectly classified as controls using the renewal criterion (Microsoft, Apple Computer and Costco) are correctly classified as treated using the textual criterion. However, some trademarks such as "Cooper" and "Ford" and design marks with no text (i.e. the Apple logo) are wrongly classified as non-famous; as a result the set of control firms contains a number of false negatives that held famous trademarks in 1995 but had generic names such as Intel, Cooper and Dole. Under the Google Books criterion, 474 firms in 140 NAICS4 industries are classified as treated. The correlation with treated vs control status using the 21-year criterion is modest at 44%.

[4] Google Books is a service which allows users to search the text of millions of historical books stored in its digital database by year of publication.

2.1.2 ***Financial World.*** Second, we use the 1995 paper publication *Financial World* (Badenhausen, 1996). This marketing magazine ranked approximately 300 of the most valuable worldwide brands each year during the 1990s. We manually match each brand to the Compustat firm (if any) that owned it as of the end of 1995. The *Financial World* classification eliminates false positives from the treated group, as each of the brands listed was clearly among the world's most famous brands. On the other hand, the *Financial World* treated group represent a much smaller set of firms, only 93 firms in 44 NAICS4 industries. This means that, first, there are likely to be many false negatives in the control group and, second, that our estimates of treatment effects may lack statistical power.

2.1.3 Estimates. Table IA1 presents estimates of the FTDA's effects on firm profits using the Google Books (columns 1-4) and *Financial World* (columns 5-8) criteria. Table IA2 presents estimates of the FTDA's effects on the main outcome variables utilizing the Google Books specification of famousness, while IA3 presents similar estimates using the Financial World criteria. We see that the results are very similar in all cases. We believe that these results are strong evidence that our overall research design and conclusions are robust, and that the FTDA represented a major legal change that affected firms with famous brands differentially.

To sum up, the changes in firm profits for treated firms, compared to the unchanged profits among control-group firms, coinciding with both the FTDA's passage and cancellation, are not an artifact of our main classification but rather are a robust feature of the data. These results also align with the view from the legal literature that the FTDA represented a significant change in the landscape of trademark protection in the United States from 1996 to 2002.

2.1.4 Unions and Intersections of Treatment Proxies. Because all three of our proxies for treatment status are imperfect, we further explore what effect errors in assigning treatment status could have on our estimates. Lewbel (2007) shows that errors in assigning treatment status cause attenuation (bias toward zero) in estimated treatment effects, analogous to standard errors-in-variables, as long as the errors are not correlated with changes in the outcome variable around the treatment event.

In this setting, there exists a latent firm characteristic that measures the true treatment status

(famousness), and we have several proxy measures for this latent variable. Because all three proxies deliver similar estimates, this suggests that the errors in assigning treatment status are not strongly associated with the changes in outcomes. Since the true (latent) treatment status is the same in each case, but the errors in the proxies are plausibly uncorrelated, combining the proxies is instructive as to how influential the errors in classification might be.

Table IA4 presents the set of all unions among our three classifications of treatment status. Because taking the union minimizes the number of false negatives, our results are less likely to be attenuated. This is exactly what we find, as our results become stronger and more robust in each union pair.

Table IA5 explores the set of all intersections among our three classifications of treatment status. The intersections minimize the number of false positives, at the cost of more false negatives and smaller sample size. We find that the estimates in every case are of similar sign and magnitude to our main results, although statistical power is lower because of the very small number of treated firms.

In sum, our results are not only consistent across three separately conceived proxies for famousness circa 1995, but are also consistent across the intersections and unions of those treatment classifications. Taken together, these results suggest that errors in assigning treatment status cannot explain our results.

2.1.5 Heterogeneous Treatment Effects: Clearly versus Almost Famous. The brands profiled in *Financial World* magazine were among the most famous brands in 1995; the firms that held those brands were thus clearly established and famous. However, the *Financial World* brands were not the only brands that were plausibly famous at the time of the FTDA's passage.[5] Thus, it is instructive to compare treatment effects between the leading incumbents that had clearly famous status (the firms that held *Financial World* brands) versus firms that were "almost famous" but had not achieved leading status in the same industry.

Table IA6 shows the results when we simultaneously estimate treatment effects for the clearly-famous incumbents ($Famous^{FW}$) and for the less famous firms that nevertheless held one or more plausibly famous brands ($AlmostFamous$, defined as famous under our baseline 21-year criterion

[5]Some examples of large firms that are treated according to our baseline classification but did not have a brand in the 1995 *Financial World* are Walmart, Exxon, and Intel.

but not a member of the $famous^{FW}$ group). The sample is restricted to the 59 NAICS4 industries that had at least one clearly-famous firm.

Column 1 shows that the FTDA raised both clearly-famous and almost-famous firms' profits by a similar amount, roughly 2pp, relative to control (non-famous) firms. This result contrasts with the product-quality and strategic responses, which were stronger in the clearly-famous group. The rise in product recalls (columns 2 and 3), lowered ad spending (column 4) and fewer new products announced (columns 5 and 6) all were stronger in the clearly-famous firms; the strategic responses by almost-famous firms were in the same direction in each case, but less strong. Finally, the shift of new trademark activity by treated firms out of old (legacy or "core offerings" in which the firm already had trademarks) and into new goods-and-service classes lies entirely within clearly-famous firms, while almost-famous firms seemingly responded in the opposite direction, moving their new trademark activity away from new and into old (legacy) USPTO classes.

These results are consistent with a model in which firms invest initially in advertising and product quality to obtain reputation or consumer mindshare, and reputation or mindshare is subsequently sticky (i.e. reputation is slow to update, or consumers face mental switching costs).[6]In such a model raising entry costs has two effects. First, it increases market power for all incumbent firms and raises their equilibrium markups – consistent with column 1. Second, if the monopoly-rent effect dominates the quality-incentive effect then raising entry costs increases firms' temptation to cheat on quality, as our main results suggest. The second effect (temptation to cheat on quality) is stronger for the leading incumbents if reputation or consumer preferences are sticky, because those firms lose fewer customers and are punished less for cheating.

2.2 Alternative Specifications and Control Groups

We next examine the robustness of our main results to alternative specifications and alternative constructions of the control group.

Table IA7 Column 1 directly controls for differences between treated and control firms in their pre-treatment trends. The variable $Pretrend_i$ is the average yearly change in ROA for firm i from 1989 to 1995. Thus this specification individually controls for each firm's pretreatment ROA growth. The pretrend term is strongly significant – firms that had growing profits pre-treatment

[6]See e.g. Shapiro (1983).

tended to continue. However, the estimated effect of the FTDA is still positive and significant.

Our main specification codes a firm as treated if it held at least one famous trademark in 1995. Column 2 examines the importance of the "intensive margin": the treatment variable $nFamousTM95_i$ is the number of famous trademarks held by firm i in 1995. The coefficient is positive and strongly significant; after the FTDA's passage firms gained on average 0.016pp to their ROA for each famous trademark they held.

Columns 3 and 4 examine the effects of varying the control group. Column 3 drops firms that did not hold a trademark as of 1995 from the sample so that the control group consists of firms that were trademark holders but held no famous trademarks in 1995. Column 4 drops trademark holders from the control group, so the comparison is between holders of famous trademarks and non trademark holders in each industry-year. In both cases the estimated treatment effect is similar to the main estimates.

Column 5 investigates the role of attrition – whether firm entry or exit drive our findings. Here we require all firms in both control and treated groups to appear at least six out of seven years in the posttreatment period. The estimate is similar to the main estimates at +1.2pp.

2.3 Nonparametric Group Averages

We follow Bertrand, Duflo, and Mullainathan (2004), who caution that the standard errors of difference-in-differences estimates are sensitive to residual autocorrelation. Following their recommendation as a conservative nonparametric test, we collapse the dependent variable ROA into pre- and post-treatment averages by firm, compute the pre-vs-post change for each firm, and compare the treated and control group means via two-sample t-test and bootstrap comparisons. The difference between the groups' average change in ROA pre-to-post-FTDA is +2.3pp (t=6.5, bootstrap z=5.8) and the difference pre-to-post-Moseley is -1.3pp (t=3.0, bootstrap z=3.1), consistent with our main results. Moreover, the strong significance of the collapsed pre-post comparisons suggests that we do not overstate our main results' statistical significance. We also repeat our main estimates with block-bootstrapped standard errors and they are nearly identical to the clustered standard errors that we report.

2.4 Covariate Balance: Coarsened Exact Matching

We examine the robustness of our main results to balancing pre-treatment characteristics between the treated and control groups. Although a balanced sample is not necessary for a difference-in-differences estimate to be consistent (the exclusion restriction is parallel trends in outcomes), we wish to explore whether differences between the groups on pretreatment observables might be contributing to the results.

We perform Coarsened Exact Matching (CEM) on the sample firms as of 1995. CEM splits the sample into discrete cells using the joint distribution of observables. CEM then 1) retains only firms for which there is at least one firm in the same cell in the opposite treatment condition, and 2) calculates optimal weights per firm that balance the sample across the joint distribution. Thus, CEM enforces both common support and joint covariate balance in a nonparametric fashion. CEM has been shown to reduce error, bias, and model dependence in a number of settings (Blackwell, Iacus, King, and Porro, 2009; Iacus, King, Porro et al., 2009; Balsmeier, Fleming, and Manso, 2016).

Table IA8 Panel A compares the treated and control groups as of 1995 before matching. We see that treated firms were larger, more profitable, advertised more, did more R&D, and were older than control firms on average and all these differences are strongly statistically significant.

Table IA8 Panel B compares the groups after coarsened exact matching (CEM). For the remaining matched and weighted firms, we do not reject equality of means across each of the covariates.

Table IA9 presents estimates of the treatment effects of the FTDA using the CEM-balanced sample. In every case the sign, size and significance of the estimated effects are similar to our main estimates.

In sum, the results after balancing the sample on pretreatment observables are strikingly similar to our main estimates reported in the paper; we conclude that pretreatment imbalance between the treated and control groups is unlikely to explain our results.

2.5 Effects on Firm Value

We next examine the FTDA's effects on firm value. We examine the market-to-book ratio which proxies for the ratio of intangible assets plus tangible assets, to tangible assets only. We take logs

for ease of interpretation (in terms of fractional changes) and because both market values and market-to-book ratios have strongly skewed distributions.

Table IA10 Columns 1 and 2 suggest that equity markets recognized the value of the profits that followed the FTDA for treated firms. Post-FTDA, treated firms' market-to-book ratios increased by 11-14% with or without firm-year controls when controlling for firm and year fixed effects. We previously estimated the average increase in ROA for treated firms at +1.7pp, which is 12% of the average pretreatment ROA for treated firms (14.3%). Thus, the proportional increase in operating profits, equity value and book to market are all of similar magnitudes. Columns 3 and 4 show that with firm and industry-year fixed effects instead of firm year fixed effects, firms' market-to-book ratios increased by 16% on average with or without firm-year controls.

From the estimates in Columns 4 and 5 we see that equity markets also reacted significantly to the Moseley decision that nullified the key provision of the FTDA in 2003: treated firms' market-to-book values fell by 5.0% and 6.4% without and with firm-year controls, respectively. We suspect that the reaction to Moseley in terms of market values was smaller than the reaction to the FTDA's passage because the FTDA was intended to be permanent, while the post-Moseley regime was likely to be temporary; lobbying and action by members of Congress to restore the FTDA status quo began almost immediately after the Moseley decision was announced.

Table IA10 Columns 7 and 8 present estimates using a switching research design, which requires that sample firms were present at least one year in all three subperiods. The estimates are consistent with the individual diff-in-diff estimates, and the magnitudes are again consistent with the changes in profits in our main estimates.

2.5.1 Recall Announcements and Firm Value. In our main results we find a near-doubling of the recall rate among treated firms. This increase seems large compared to the smaller responses observed for ROA and other variables. However, because recalls are rare events that occur in only 1 to 2% of firm-years, the increase is from a low baseline.

From the firm's perspective, the optimal quality level equates the cost savings (higher profits) from cutting quality to the expected costs of cutting quality. What are the costs? In a back of the envelope calculation (dividing the dollar figure of the recalled product value, where disclosed, by the firm's equity market cap that day) we estimate the average recall in our sample had a direct

cost of 0.8% of market capitalization. When we examine daily returns we find that on average, on the day of the recall announcement, the firm loses 0.3% of market value (t=3.7), which is similar in magnitude to the estimated direct cost.

Viewed in this way, the increase in the recall rate may seem low; if I can increase my ROA by 1pp and the cost is a 2.3pp greater probability of an event that costs less than 1% of firm value, I should certainly do so. However, recalls are just one consequence of lowering quality. Even if there was no product recall, we expect that consumers would notice the lower quality eventually and brand reputation would suffer. Thus, we view recalls as only one of the potential costs of lower quality.

3 Heterogeneity in Treatment Effects

We hypothesize that trademark protection should be more valuable in industries with more specialized products (Titman and Wessels, 1988), industries that are more focused on sales and marketing, and industries that rely more on trademark protection ex ante. Table IA11 presents sample splits on industry-level characteristics as of 1995, with ROA as the dependent variable in Panel A and LogRecalls as the dependent variable in Panel B. Columns 1 and 2 split the sample on industry ad spending as a fraction of sales. Columns 3 and 4 split the sample on industry selling, general and administrative (SG&A) expense as a fraction of sales. The estimated treatment effects of the FTDA on both profits and and product recalls were stronger in industries that spent more on sales and marketing ex ante. Table IA11 columns 5 and 6 split the sample on the industry stock of trademarks circa 1995. The estimated treatment effects of the FTDA on both profits and product recalls were stronger in industries that held more trademarks ex ante.

These findings are all consistent with our hypothesis that the effects of the FTDA were localized in industries that were ad-intensive, selling-intensive and trademark-intensive ex ante. The correlations between the categories are modest: between selling-intensive and trademark-intensive, 34%; between ad-intensive and selling-intensive, 31%; between ad-intensive and trademark-intensive, 19%.

Finally, Table IA11 columns 7 and 8 split the sample on the basis of how geographically dispersed each firm's operations were as of 1995. We use the firm-by-state operations measures of Garcia

and Norli (2012) and classify a firm as geographically dispersed if its 1995 HHI across states was below 0.6 ("Low"). If the firm's HHI across states in 1995 was higher than 0.6 then we consider it as geographically concentrated ("High"). The treatment effects were stronger in firms with geographically dispersed operations (Low state HHI) consistent with greater reliance on federal trademark legislation by dispersed firms, as opposed to firms that operated in one or two states, who could have pursued state-level enforcement pre-1996.

4 Effects of the FTDA on Industry Dynamics: Evidence from the Synthetic LBD

This section presents results on the FTDA's effects on industry dynamics. Because Compustat only covers publicly traded firms, it may not paint a full picture of industry dynamics. For this reason, we use the Synthetic Longitudinal Business Database[7] to measure entry at the plant level.

In this section our independent variable of interest, $FractionTreated_i$, is the fraction of each industry's total 1995 sales that was accounted for by firms affected by the FTDA.[8]. The main confounding factor is that different industries would have had different dynamics in the absence of treatment. We control for preexisting differences in industry dynamics in two ways. First, all specifications include industry fixed effects, which difference out time-invariant differences between industries, and year fixed effects which remove aggregate yearly changes in business conditions. Second, we fit linear and quadratic pretrends in each dependent variable for each industry.

Table IA12 shows that the number of active plants in production fell more in industries with a higher percentage of sales accounted for by treatment firms, and fewer new plants were established in these industries post-FTDA. The results also hold controlling for linear or quadratic pretrends by industry. These results are consistent with our hypothesis that the FTDA's grant of antidilution protection raised expected entry costs, leading to lower entry and higher concentration in more affected industries.

[7] The Synthetic Longitudinal Business Database is based on the restricted-use microdata on economic activity collected in the Longitudinal Business Database surveys. The synthetic data product allows researchers to access aggregated forms of economic data while still protecting survey participant anonymity.

[8] Thus, an industry in which treated firms accounted for 40% of total sales in 1995 has $FractionTreated$ =0.4

5 Campbell's Branded Merchandise

In the paper we document that after being registered in one goods and service class (Foods) for 63 years, in 1996 – the year the FTDA became effective – Campbell's Inc. extended its red-and-white logo into fifteen new trademark classes. Each of these new classes was subject to the use-in-commerce requirement for successful registration, so the firm must have produced and sold products in each class.

Figure IA2 shows examples of two new classes of good in which Campbell's newly registered its trademark and began producing in the late 1990s – Furniture and Jewelry.

6 Post-FTDA Dilution Cases

Upon passage of the FTDA, the courts' initial interpretations of the law were favorable to trademark holders. The following examples illustrate the post-FTDA burden of proof for Federal trademark dilution claims. Overall, they demonstrate the broad scope of market power which resulted from these interpretations.

Intermatic Inc. v. Toeppen, 947 F. Supp. 1227 (N.D. Ill. 1996): Dennis Toeppen registered over 240 domain names of famous trademarks, one of which belonged to the company Intermatic. The judge refused a summary motion in Imtermatic's favor based on grounds of trademark infringement and unfair competition, but did offer a summary judgment in favor of Intermatic on grounds of dilution. The court found that Toeppen's use of intermatic.com was likely to cause dilution by lessening the capacity of Intermatic to identify its goods over the internet.

Panavision Int'l, L.P. v. Toeppen, 141 F.3d 1316 (9th Cir. 1998), 945 F. Supp. 1296 (C.D. Cal. 1996): In a case similar to above Panavision sued Toeppen over panavision.com. The court found that Toeppen made commercial use of Panavision's trademarks and his conduct diluted those marks.

Toys R Us v. Akkaoui, 40 U.S.P.Q.2d (BNA) 1836 (N.D. Cal. 1996): Mohamad Akkaoui created an internet shopping service named Adults R Us, which sold lingerie and sexual devices. Toys R Us filed a FTDA claim for injunction. The court found that the Toys R Us trademark was likely to

suffer dilution and ordered Adults R Us to cancel their website and take measures to remove any record of their website's existence from the web.

Anheuser-Busch, Inc. v. Andys Sportswear, Inc., 40 U.S.P.Q.2d 1542 (N.D. Cal. 1996): Andy's Sportswear manufactured and distributed t-shirts with the slogan Buttwiser. The court found that Andy's was likely to dilute the Budweiser brand. The resulting verdict dictated that Andy's was enjoined from manufacturing, screening, distributing, marketing, displaying, or selling the 'Buttwiser' t-shirts, or any other t-shirts or goods bearing any unauthorized designs, slogans, labels, designations, logos, artwork, or putative trademarks similar to Anheuser-Busch's state and federal registered trademarks, or the Budweiser trade dress.

Wawa Inc. v. Haha 24 Hr. Market, A/k/a Haha, 116 F.3d 471 (3d Cir. 1997): The owner of the 24-hour market and dairy WAWA flied dilution claims against owners George Haaf and Tamilee Haaf recently established HAHA 24 HR. Market. First, the court established the WAWA trademark's fame based on its age of 90 years. Second, WAWA was able to show by survey that approximately 30% of local customers believed the two stores were affiliated and therefore established a likelihood of dilution by blurring. The court established a likelihood of dilution and permanently enjoined the Haaf's from using the HAHA name.

Dr. Seuss Enters., LP v. Penguin Books USA, Inc., 109 F.3d 1394 (9th Cir. 1997): Penguin Books and Dove Audio, Inc., wanted to publish and distribute a book titled The Cat NOT in the Hat! A Parody by Dr. Juice, a rhyming summary of the O.J. Simpson trial. The court found that Penguin's book was likely to harm the goodwill of Seuss, and an injunction resulted in spite of the fact that parody was specifically protected by the FTDA.

Hasbro, Inc. v. Internet Entertainment Group, Ltd. 40 U.S.P.Q.2d 1479 (W.D. Wash. 1996): The internet group operated a sexually explicit website named canyland.com. The court found that the offending website caused dilution by tarnishment and prohibited the internet group from using Hasbro's trademark.

Nailtiques Cosmetic Corp. v. Salon Sciences Corp., 41 U.S.P.Q.2d 1995 (S.D. Fla. 1997): The court found that the nail polish of Salon Sciences was to similarly packaged to that of Nailtiques, and that Salon Siences' trade dress is likely to dilute the distinctive quality of the Nailtiques Trademarks and Trade Dress and to erode Nailtiques' selling power.

American Dairy Queen v. New Line Productions, 35 F. Supp. 2d 727 (D. Minn. 1998): New

Line Productions was preparing to release a mockumentary based in dairy-rich rural Minnesota called Dairy Queens. In spite of the film having no intended relation to American Dairy Queen products, the court enjoined New Line from using the title order to "avoid confusion and dilution.

Mattel, Inc. v. McBride 48 U.S.P.Q.2d 1467 (S.D.N.Y. 1998): Mattel was granted an injunction, gross revenues, and legal fees from McBride's adult video-chat website which used the name Barbies Playhouse. Mattel was allowed for reparations beyond injunction because McBride made a willful attempt to trade on the goodwill of Mattel in the BARBIE trademark.

Liquid Glass Enter. v. Dr. Ing. hcF Porsche AG, 8 F. Supp. 2d 398 (D.N.J. 1998): Liquid Glass Enterprises was prevented using a Porsche, which they owned privately, in a car polish commercial on grounds that it would dilute the Porsche image.

Avery Dennison Corporation v. Jerry Sumpton., et al CV 97-407 JSL, 999 F.Supp. 1337 (C.D. Cal. 3/16/1998) rev'd. 189 F.3d 868, 1999 U.S. App. Lexis 19954 (9th Cir., 8/23/1999): Jerry Sumpton registered avery.net and dennison.net for his vanity website business. The court initially found that Sumpton's use of said domain names would dilute Dennison's ability to identity itself in the internet. The court ordered Sumpton to surrender the domain names even though Sumpton had a legitimate business reason to own them. This decision was later reversed because the court decided that the Avery Dennison trademark was not famous. The loose definition of famousness provided by the FTDA became a significant stumbling block for future dilution cases.

Jews for Jesus v. Brodsky, 993 F.Supp. 282 (D. NJ. 1998)): The plaintiff Jews for Jesus sued the defendant Brodsky for use of the domain jewsforjesus.com, a site which disparaged Jews for Jesus and provided links to another pro-Judaism site. The courts sided with Jews for Jesus on grounds the website would cause "irreparable injury" to Jews for Jesus.

McNeil Consumer Brands, Inc. v. US Dentek Corp., 116 F. Supp. 2d 604 (E.D. Pa. 2000): McNeil, owner of the Tylenol brand, was awarded an injunction against US Dentek for the use of dental analgesic Tempanol finding that defendant's use of 'Tempanol' is blurring and thus diluting the 'Tylenol' mark in violation of the FTDA.

Eli Lilly and Co. v. Natural Answers, Inc., 86 F. Supp. 2d 834 (S.D. Ind. 2000): Eli Lilly, makers of Prozac, were granted an injunction against Natural Answers for the continued use Herbrozac, the name of herbal blend product.

Kellogg Co. v. Exxon Mobil Corp., 192 F. Supp. 2d 790 (W.D. Tenn. 2001): The court found

that Exxon's use of the Cartoon Tiger to advertise and promote alcohol and tobacco products tarnishes Kellogg's Tony the Tiger mark.

7 Post-Moseley Dilution Cases

The *Moseley v. V Secret Catalogue, Inc.* verdict of March 2003, which required dilution claims to show proof of economic damages, was perceived as effectively killing the FTDA's exceedingly broad definition of trademark dilution. The following examples illustrate the much higher post-*Moseley* burden of proof for Federal dilution claims, which was perceived in the legal literature as equivalent to proof of infringement.

Visa Int'l Serv. Assoc. v. JSL Corp. 90 Fed. Appx. 484 (9th Cir. 2003) The district court reversed a previous ruling that enjoined JSL Corporation's use of the "eVisa.com" website because Visa failed to show actual dilution.

Nitro Leisure Prods., LLC v. Acushnet Co., 341 F.3d 1356, 67 U.S.P.Q.2d (BNA) 1814 (Fed. Cir. 2003) Nitro Leisure Products sold used golf balls which were re-finished with the Achshnet trademark. Because Achshnet could not prove that this actually damaged its reputation, the dilution claim was rejected.

Horphag Research Ltd. v. Pellegrini, 337 F.3d 1036, 1041 (9th Cir. 2003) The court reversed the previously successful dilution claim because Horphag could not provide proof of actual dilution.

Savin Corp. v. Savin Group 68 U.S.P.Q.2d 1893 (S.D.N.Y. 2003) The trademark dilution claim failed because the trademark owner failed to show actual dilution.

Caterpillar Inc. v. Walt Disney Co., 287 F. Supp. 2d 913 (C.D. Ill. 2003) The trademark dilution claim failed because Caterpillar failed to show loss of sales or profits that resulted from dilution.

HBP, Inc. v. American Marine Holdings, Inc., 290 F. Supp. 2d 1320 (M.D. Fla. 2003) The trademark dilution claim failed because HBP failed to show loss of sales or profits that resulted from dilution.

Golden West Financial, et al. v. WMA Mortgage Services, et al., No. C 02-05727 CRB (N.D. Cal. 2003) Survey evidence which showed that consumers mentally associated WMA's mark with

Golden West's mark was found to be insufficient evidence of proof of dilution.

Playtex Products, Inc. v. Georgia-Pacific Corporation, 390 F.3d 158 (2d Cir.2004) The trademark dilution claim failed because Playtex failed to show loss of sales or profits that resulted from dilution.

Sullivan v. CBS Corp., 385 F.3d 772 (7th Cir. 2004) The trademark dilution claim failed because Sullivan failed to show loss of sales or profits that resulted from dilution.

AutoZone Inc. v. Tandy Corp., 373 F 3d 786 (6th Cir 2004) The district court reversed a previous finding of dilution because AutoZone failed to show loss of sales or profits that resulted from dilution.

Playboy v. Netscape, 354 F.3d 1020 (9th Cir. 2004) The district court reversed a previous finding of dilution because Playboy failed to show loss of sales or profits that resulted from dilution.

Alpha Tau Omega Fraternity, Inc. v. Pure Country, Inc., No. IP 01-1054-C-B/F (S.D. Ind. 2004) The trademark dilution claim failed because Alpha Tau Omega failed to show proof of dilution.

Louis Vuitton Malletier v. Dooney Bourke, Inc., 340 F. Supp. 2d 415, 419-28 (S.D.N.Y. 2004) Survey evidence which showed that consumers mentally associated Dooney Bourke's mark with Louis Vuitton's mark was found to be insufficient evidence of proof of dilution.

Starbucks Corp. V. Lundberg, CV. No. 02-948-HA. (D. Or. Nov 10, 2004) The dilution claim failed because Starbucks failed to show actual dilution.

Starbucks Corp. v. Wolfe's Borough Coffee, Inc., No. 01 Civ. 5981 (S.D.N.Y. 2004) Survey evidence which showed that consumers mentally associated Wolfe's Borough Coffee's mark with Starbucks's mark was found to be insufficient evidence of proof of dilution.

Omega SA v. Omega Engineering, Inc., 396 F. Supp. 2d 166 (D. Conn. 2005) The dilution claim failed because the trademark owner failed to show actual dilution.

Corbond Corp. v. Core Foam, Inc., 356 F. Supp. 2d 910 (W.D. Wis. 2005) The dilution claim failed because Corbond failed to show actual dilution.

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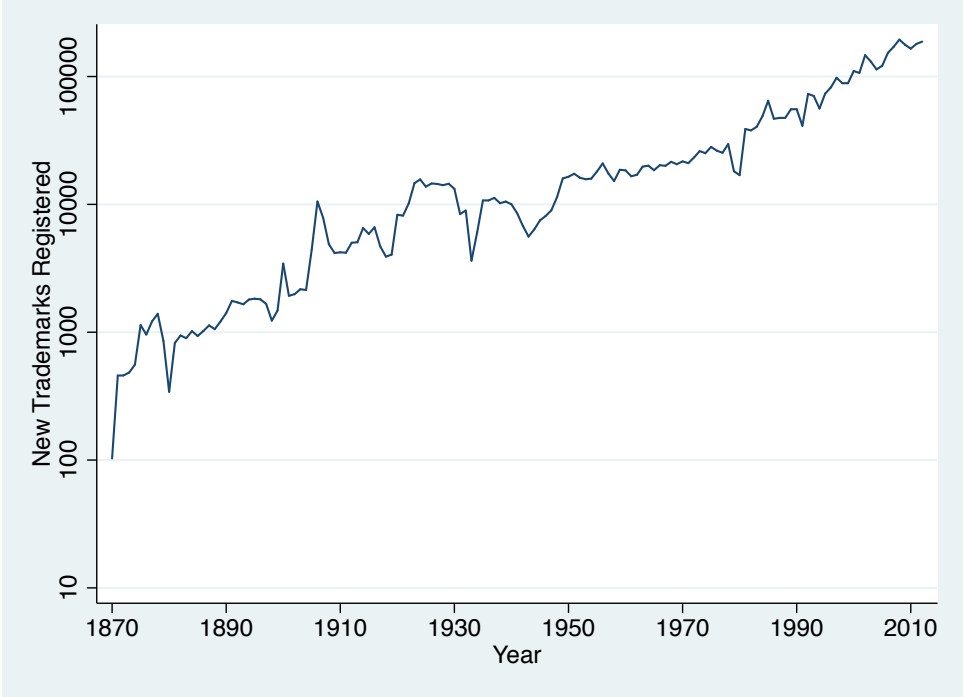

Figure IA1. The figure displays the number of trademarks registered at the USPTO per year from 1870-2012.

Panel A: Campbell's branded furniture

Panel B: Campbell's branded jewelry

Figure IA2. The figure shows examples of Campbell's branded furniture and jewelry produced in the late 1990s after the Federal Trademark Dilution Act (FTDA) was passed.

Table IA1. Robustness checks, estimating the effects of the 1996 Federal Trademark Dilution Act on treated firms' profits using alternate specifications of treated status: the Google Books criterion (columns 1-4) and the Financial World 1995 publication criterion (columns 5-8). Industry-by-year fixed effects are at the four-digit NAICS level. Standard errors are robust and clustered by firm.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA
$PostFTDA_t \times$	0.016***	0.014**		0.014**				
$Famous_i^{GoogleBooks}$	(3.2)	(2.3)		(2.4)				
$Post2002_t \times$			-0.0086	-0.0090				
$Famous_i^{GoogleBooks}$			(-1.3)	(-1.3)				
$PostFTDA_t \times$					0.014*	0.016*		0.016*
$Famous_i^{FW}$					(1.8)	(1.8)		(1.8)
$Post2002_t \times$							-0.017*	-0.020*
$Famous_i^{FW}$							(-1.7)	(-1.9)
Observations	84,842	84,227	62,684	100,480	84,842	84,227	62,684	100,480
Adjusted R^2	0.648	0.658	0.686	0.652	0.648	0.658	0.686	0.652
Period	1989-2002	1989-2002	1996-2005	1989-2005	1989-2002	1989-2002	1996-2005	1989-2005
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	No	No	Yes	No	No	No
Industry x Year FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes

Table IA2. Robustness checks, estimating the effects of the 1996 Federal Trademark Dilution Act on main outcome variables for treated firms' using the Google Books criterion for famousness. Industry-by-year fixed effects are at the four-digit NAICS level. Standard errors are robust and clustered by firm.

Panel A: Profits, Recalls, and Innovation

	(1) ROA	(2) $Recalls$	(3) $log(Recalls)$	(4) $R\&D/Assets$	(5) $NewPatents$	(6) $log(Citations)$	(7) $log(PatentValue)$
$PostFTDA_t \times$	0.014**	0.75***	0.027***	-0.0016	-0.37***	-0.36***	0.26***
$FamousTM1995_i^{GoogleBooks}$	(2.3)	(3.7)	(3.6)	(-0.8)	(-5.6)	(-5.0)	(4.9)
Observations	84,227	88,326	86,578	86,578	88,326	86,578	86,578
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	No	Yes	No	No
Industry X Year FE	Yes	No	Yes	Yes	No	Yes	Yes
Model	OLS	Neg. Bin	OLS	OLS	Neg. Bin	OLS	OLS

Panel B: Product Market Strategy

	(1) $NewProduct$	(2) $log(NewProduct)$	(3) $Ad/Sale$	(4) $BrandExtending$	(5) $ActiveClasses$	(6) $log(FirmExit)$
$PostFTDA_t \times$	-0.90***	-0.20***	-0.0008	0.024***	2.45***	-0.060***
$FamousTM1995_i^{GoogleBooks}$	(-5.4)	(-7.1)	(-0.8)	(2.2)	(8.9)	(-7.9)
Observations	15,587	86,578	85,177	86,578	86,578	86,578
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	No	No	No	No
Industry X Year FE	No	Yes	Yes	Yes	Yes	Yes
Model	Logit	OLS	OLS	OLS	OLS	OLS

Table IA3. Robustness checks, estimating the effects of the 1996 Federal Trademark Dilution Act on main outcome variables for treated firms' using the Financial World 1995 publication criterion for famousness. Industry-by-year fixed effects are at the four-digit NAICS level. Standard errors are robust and clustered by firm.

Panel A: Profits, Recalls, and Innovation

	(1) ROA	(2) $Recalls$	(3) $log(Recalls)$	(4) $R\&D/Assets$	(5) $NewPatents$	(6) $log(Citations)$	(7) $log(PatentValue)$
$PostFTDA_t \times$	0.016*	0.26	0.061***	-0.013***	0.079	-0.16	1.02***
$FamousTM1995_i^{FW}$	(1.8)	(1.0)	(3.1)	(-3.3)	(0.7)	(-1.0)	(6.4)
Observations	84,227	88,326	86,578	86,578	88,326	86,578	86,578
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	No	Yes	No	No
Industry X Year FE	Yes	No	Yes	Yes	No	Yes	Yes
Model	OLS	Neg. Bin	OLS	OLS	Neg. Bin	OLS	OLS

Panel B: Product Market Strategy

	(1) $NewProduct$	(2) $log(NewProduct)$	(3) $Ad/Sale$	(4) $BrandExtending$	(5) $ActiveClasses$	(6) $log(FirmExit)$
$PostFTDA_t \times$	-0.33	-0.30***	-0.0036	0.016	3.49***	-0.083***
$FamousTM1995_i^{FW}$	(-1.0)	(-4.0)	(-1.0)	(0.8)	(5.6)	(-5.7)
Observations	15,587	86,578	85,177	86,578	86,578	86,578
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	No	No	No	No
Industry X Year FE	No	Yes	Yes	Yes	Yes	Yes
Model	Logit	OLS	OLS	OLS	OLS	OLS

Table IA4. The table presents the estimated coefficients of our main outcome variables when we use unions of our three classifications of trademark famousness: Age, Google Books, and Financial World Magazine. Each regression uses Firm and four-digit NAICS Industry-by-year fixed effects. Standard errors are robust and clustered by firm.

	(1) ROA	(2) Recalls	(3) Log(Recalls)	(4) R&D/Assets	(5) NewPatents	(6) Log(Citations)	(7) log(PatentValue)	(8) NewProduct	(9) log(NewProducts)	(10) Ad/Sale	(11) BrandExtending	(12) ActiveClasses	(13) log(FirmExit)
$Famous_{Age} \cup Famous_{GoogleBooks}$	0.016***	0.80***	0.016***	-0.0025*	-0.48***	-0.51***	0.16***	-1.38***	-0.21***	-0.00064	0.040***	1.89***	-0.056***
$\times Post95$	(3.6)	(3.5)	(3.8)	(-1.7)	(-8.0)	(-5.8)	(4.4)	(-10.1)	(-10.4)	(-0.9)	(5.4)	(9.3)	(-8.7)
Number of Treated Firms:							915						
$Famous_{Age} \cup Famous_{FW}$	0.018***	0.54**	0.017***	-0.0047***	-0.47***	-0.57***	0.20***	-1.47***	-0.23***	-0.00085	0.047***	1.59***	-0.057***
$\times Post95$	(4.4)	(2.3)	(3.4)	(-3.6)	(-7.6)	(-3.4)	(4.4)	(-10.7)	(-10.7)	(-1.1)	(5.3)	(7.2)	(-8.5)
Number of Treated Firms:							767						
$Famous_{GoogleBooks} \cup Famous_{FW}$	0.013**	0.79***	0.031***	-0.0025	-0.32***	-0.52***	0.32***	-0.84***	-0.19***	-0.00039	0.022**	2.60***	-0.063***
$\times Post95$	(2.3)	(3.8)	(4.3)	(-1.3)	(-4.7)	(-2.9)	(5.6)	(-5.1)	(-6.9)	(-0.4)	(2.1)	(9.7)	(-8.3)
Number of Treated Firms:							509						
$Famous_{Age} \cup Famous_{GoogleBooks} \cup Famous_{FW}$	0.017***	0.85***	0.017***	-0.0032**	-0.43***	-0.62***	0.20***	-1.33***	-0.20***	-0.00053	0.040***	1.97***	-0.057***
$\times Post95$	(3.6)	(3.7)	(4.0)	(-2.2)	(-7.0)	(-3.3)	(5.1)	(-9.7)	(-10.1)	(-0.7)	(5.5)	(9.7)	(-8.9)
Number of Treated Firms:							942						

Table IA5. The table presents the estimated coefficients of our main outcome variables when we use intersections of our three classifications of trademark famousness: Age, Google Books, and Financial World Magazine. Each regression uses Firm and four-digit NAICS Industry-by-year fixed effects. Standard errors are robust and clustered by firm.

	(1) ROA	(2) Recalls	(3) Log(Recalls)	(4) R&D/Assets	(5) NewPatents	(6) Log(Citations)	(7) log(PatentValue)	(8) NewProduct	(9) log(NewProducts)	(10) Ad/Sales	(11) BrandExtending	(12) ActiveClasses	(13) log(FirmExit)
$Famous_{Age} \cap Famous_{GoogleBooks}$	0.020***	0.48**	0.30**	-0.0030**	-0.65***	-0.28***	0.29***	-1.60***	-0.33***	-0.0011	0.047***	2.4***	-0.075***
$\times Post95$	(3.8)	(2.1)	(3.0)	(-2.0)	(-9.2)	(-5.4)	(4.4)	(-8.8)	(-9.3)	(-0.8)	(2.8)	(7.0)	(-7.9)
Number of Treated Firms:							288						
$Famous_{Age} \cap Famous_{FW}$	0.016	-0.061	0.064**	-0.0052	-0.45***	-0.28***	0.72***	-1.39***	-0.48***	-0.0045	0.015	3.62***	-0.096***
$\times Post95$	(1.4)	(0.66)	(2.5)	(-1.5)	(-5.1)	(-4.8)	(5.9)	(-4.0)	(-6.2)	(-1.0)	(0.6)	(4.4)	(-5.6)
Number of Treated Firms:							61						
$Famous_{GoogleBooks} \cap Famous_{FW}$	0.023*	0.41	0.055**	-0.012***	-0.15	-0.30***	0.97***	-0.69*	-0.44***	-0.0071	0.033	3.51***	-0.10***
$\times Post95$	(2.1)	(1.6)	(2.1)	(-2.8)	(-1.4)	(-4.2)	(7.1)	(-1.7)	(-5.3)	(-1.6)	(1.3)	(4.9)	(-6.8)
Number of Treated Firms:							64						
$Famous_{Age} \cap Famous_{GoogleBooks} \cap Famous_{FW}$	0.024**	0.062	0.050*	-0.0077*	-0.42***	-0.25***	0.88***	-1.40***	-0.54***	-0.0066	0.028	3.42***	-.10***
$\times Post95$	(2.0)	(0.3)	(1.7)	(-2.0)	(-4.8)	(-4.7)	(7.0)	(-3.5)	(-6.5)	(-1.2)	(1.0)	(4.0)	(-5.7)
Number of Treated Firms:							53						

Table IA6. Comparing the effects of the 1996 Federal Trademark Dilution Act on firms ($Famous^{FW}$, defined as firms with brands that were listed in the 1995 *Financial World* publication) and on less-famous ($AlmostFamous$, defined as firms with brands that met the baseline criterion but were not in *Financial World*) firms' profits, product recalls and and strategy. Industry-by-year fixed effects are at the four-digit NAICS level. Standard errors are robust and clustered by firm.

	(1) ROA	(2) $hadRecall$	(3) $logRecalls$	(4) $Ad/Sale$	(5) $NewProduct$	(6) $logNewProducts$	(7) $logTMs^{OldClass}$	(8) $logTMs^{NewClass}$
$PostFTDA_t \times$	0.022**	0.048***	0.062***	-0.0035	-0.158***	-0.334***	-0.033	0.128*
$Famous_i^{FW}$	(2.4)	(2.7)	(3.2)	(-1.1)	(-4.5)	(-4.4)	(-0.9)	(1.8)
$PostFTDA_t \times$	0.020**	0.006	0.005	-0.0021	-0.084***	-0.158***	0.042**	-0.031
$AlmostFamous_i$	(2.4)	(1.5)	(1.1)	(-1.5)	(-5.0)	(-4.7)	(2.3)	(-0.9)
Observations	28,025	28,489	28,489	27,860	28,489	28,489	28,489	28,489
Adjusted R^2	0.675	0.369	0.671	0.683	0.536	0.619	0.122	0.758
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table IA7. Robustness and specification checks estimating the effects of the 1996 Federal Trademark Dilution Act on treated firms' profits under alternate specifications and control groups. Industry-by-year fixed effects are at the four-digit NAICS level. Standard errors are robust and clustered by firm.

	(1)	(2)	(3)	(4)	(5)
	ROA	*ROA*	*ROA*	*ROA*	*ROA*
$PostFTDA_t \times$	0.010**		0.019***	0.015***	0.012***
$FamousTM1995_i$	(2.5)		(3.3)	(3.3)	(2.7)
$Pretrend_i \times t$	0.11***				
	(8.3)				
$PostFTDA_t \times$		0.00016**			
$NfamousTM1995_i$		(2.3)			
Observations	65,135	84,227	60,891	31,265	54,877
Adjusted R-squared	0.620	0.658	0.667	0.614	0.627
Firm FE	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes	Yes
Control Firms:			No Trademarks	Must have Trademarks	
Other:					No Entry & Exit

Table IA8. Comparison of treated and control firms as of 1995 before and after balancing via Coarsened Exact Matching. p-values are based on a univariate t-test for difference of means.

Panel A: Firm Characteristics in 1995 before Coarsened Exact Matching

	Control Group		Treated Group		Difference
	Mean	Std. Dev.	Mean	Std. Dev.	p-value
$logSales$	4.02	1.96	6.50	2.06	<0.001
$logAssets$	4.58	2.01	6.34	2.21	<0.001
ROA	0.032	0.242	0.143	0.103	<0.001
$Ad/Sales$	0.0061	0.024	0.011	0.031	<0.001
$R\&D/Assets$	0.042	0.101	0.023	0.036	<0.001
Age	15.1	16.9	25.9	14.9	<0.001
# of Firms	6271		729		

Panel B: Firm Characteristics in 1995 after Coarsened Exact Matching

	Control Group		Treated Group		Difference
	Mean	Std. Dev.	Mean	Std. Dev.	p-value
$logSales$	5.11	1.96	6.43	2.05	0.22
$logAssets$	5.40	2.05	6.27	2.20	0.65
ROA	0.107	0.123	0.140	0.103	0.12
$Ad/Sales$	0.0041	0.015	0.0066	0.021	0.11
$R\&D/Assets$	0.017	0.041	0.023	0.036	0.24
Age	20.4	15.9	25.3	13.3	0.44
# of Firms	5113		696		

Table IA9. Difference-in-differences estimates of the effects of the passage and nullification of the Federal Trademark Dilution Act on main outcome variables in the sample balanced on pre-treatment covariates using Coarsened Exact Matching. Industry-by-year fixed effects are at the four-digit NAICS level. Standard errors are robust and clustered by firm.

Panel A: Profits, Recalls, and Innovation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	ROA	$Recalls$	$log(Recalls)$	$R\&D/Assets$	$log(NewPatents)$	$log(Citations)$	$log(PatentValue)$
$PostFTDA_t$	0.014***	0.014***	0.015***	-0.0024**	-0.073**	-0.30***	0.088*
$FamousTM1995_i$	(3.7)	(3.0)	(2.6)	(-2.2)	(-2.5)	(-4.6)	(1.9)
Observations	55,427	56,103	56,103	56,103	56,103	56,103	56,103
Adjusted R-squared	0.528	0.479	0.680	0.745	0.860	0.762	0.843
Weights	CEM	CEM	CEM	CEM	CEM	CEM	CEM
Period	1989-2002	1989-2002	1989-2002	1989-2002	1989-2002	1989-2002	1989-2002
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Product Market Strategy

	(1)	(2)	(3)	(4)	(5)	(6)
	$NewProduct$	$log(NewProduct)$	$Ad/Sale$	$BrandExtending$	$ActiveClasses$	$log(FirmExit)$
$PostFTDA_t$	-0.089***	-0.18***	-0.0011*	0.048***	0.83***	-0.039***
	(-7.1)	(-7.6)	(-1.8)	(5.0)	(3.2)	(-5.3)
Observations	56,103	56,103	55,818	56,103	56,103	56,103
Adjusted R-squared	0.544	0.645	0.693	0.787	0.890	0.123
Weights	CEM	CEM	CEM	CEM	CEM	CEM
Period	1989-2002	1989-2002	1989-2002	1989-2002	1989-2002	1989-2002
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table IA10. Difference-in-differences estimates of the effects of the 1996 Federal Trademark Dilution Act, and the subsequent nullification of its main provision in *Moseley v. V. Secret Catalogue, Inc.* in 2003, on treated firms' log market-to-book ratio. Firm-year control variables are Q, $Ad/Sales$, $R\&D/Assets$, Age, $logTrademarkStock$. Variable definitions can be found in Internet Appendix Section 1.3. Industry-by-year fixed effects are at the four-digit NAICS level. Standard errors are robust and clustered by firm.

	(1) $LogMarketBook$	(2) $LogMarketBook$	(3) $LogMarketBook$	(4) $LogMarketBook$	(5) $LogMarketBook$	(6) $LogMarketBook$	(7) $LogMarketBook$	(8) $LogMarketBook$
$PostFTDA_t \times$	0.11***	0.14***	0.16***	0.16***			0.21***	0.20***
$FamousTM1995_i$	(6.9)	(8.1)	(8.9)	(8.4)			(11.1)	(10.5)
$Post2002_t \times$					-0.050***	-0.064***	-0.0074	-0.015
$FamousTM2002_i$					(-2.9)	(-3.6)	(-0.4)	(-0.8)
Observations	81,330	68,104	80,692	67,469	59,205	48,020	127,885	108,765
Adjusted R^2	0.568	0.561	0.607	0.594	0.615	0.601	0.580	0.570
Period	1989-2002	1989-2002	1989-2002	1989-2002	1996-2005	1996-2005	1989-2005	1989-2005
Firm-year Controls	No	Yes	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No	No	No	No	No
Industry x Year FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Table IA11. Difference-in-differences estimates of the effects of the 1996 Federal Trademark Dilution Act on treated firms' profits (ROA) and product quality ($logRecalls$), splitting the sample by industry-level measures of advertising, selling expense (SG&A), and trademark stock and firm-level geographic concentration as of 1995. Geographic HHI is the Herfindahl index of each firm's state-level weights per Garcia and Norli (2012). Standard errors are robust and clustered by firm. Variable definitions can be found in Internet Appendix Section 1.3. Industry-by-year fixed effects are at the four-digit NAICS level. Standard errors are robust and clustered by firm.

Panel A: ROA

	Advertising		SG&A		Trademark Stock		Geographic HHI	
	High	Low	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA
$PostFTDA_t \times$	0.021***	0.006	0.027***	0.004	0.016**	0.010	0.010	0.017***
$FamousTM1995_i$	(3.0)	(0.9)	(3.3)	(0.6)	(2.2)	(1.6)	(0.9)	(2.8)
Observations	15,811	17,638	16,067	17,385	17,085	16,375	14,520	18,097
Adjusted R-squared	0.612	0.592	0.621	0.569	0.614	0.602	0.575	0.595
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Product Recalls

	Advertising		SG&A		Trademark Stock		Geographic HHI	
	High	Low	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$logRecalls$	$logRecalls$	$logRecalls$	$logRecalls$	$logRecalls$	$logRecalls$	$logRecalls$	$logRecalls$
$PostFTDA_t \times$	0.022**	0.010	0.019**	0.013	0.024***	0.002	0.012	0.017**
$FamousTM1995_i$	(2.3)	(1.5)	(2.1)	(1.5)	(3.7)	(0.2)	(1.3)	(2.1)
Observations	15,885	17,931	16,111	17,708	17,368	16,459	14,617	18,385
Adjusted R-squared	0.760	0.666	0.518	0.827	0.713	0.759	0.834	0.724
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table IA12. Difference-in-differences estimates of the effects of the 1996 Federal Trademark Dilution Act on industry dynamics and firm entry, using the Synthetic LBD. Observations are at the SIC3 level by year from 1989-2002. Variable definitions can be found in Internet Appendix Section 1.3. Standard errors are robust and clustered by industry.

	(1) *nplants*	(2) *nplants*	(3) *nplants*	(4) *plantbirth*	(5) *plantbirth*	(6) *plantbirth*
$FractionTreated_i$	-0.096***	-0.039	-0.054**	-0.12**	-0.084	-0.12**
$\times$ $PostFTDA_t$	(-3.4)	(-1.4)	(-2.0)	(-2.2)	(-1.6)	(-2.2)
Observations	2,632	2,632	2,632	2,632	2,632	2,632
Model	Neg.Bin.	Neg.Bin.	Neg.Bin.	Neg.Bin.	Neg.Bin.	Neg.Bin.
Pretrend		Linear	Quadratic		Linear	Quadratic
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes