How Important Are Marketing Employees? Marketing Employee Turnover and Brand Performance

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Abstract

We test the impact of marketing employees on brand performance metrics by inspecting how marketing employee turnover—stratified by seniority, role and type—affects brand buzz and brand equity. Using a novel dataset that combines detailed employment records with brand metrics for 477 firms from 2012 to 2020, we find strong evidence that marketing employee turnover leads to significant declines in both brand buzz and brand equity, with the departure of a senior marketing executive estimated to reduce brand buzz and equity by approximately 3.9% and 1.5% of the median within-firm standard deviation, respectively. Effects are higher for employees in digital marketing roles and for employees who find another similar- or higher-seniority marketing job within 6 months ("successfully reemployed"), and are lower for those who do not secure another marketing job after their exit ("non-reemployed"). Turnover of mid-level managers and junior employees produces significant and meaningful (albeit monotonically smaller) negative impacts. Results are robust to both exhaustive two-way fixed effects and IV analysis based on turnover at peer-of-peer firms, in both cases controlling for industry-specific time trends, and compare to null effects in placebo tests. Taken together, our study provides novel quantitative estimates of the importance of marketing professionals for brands.

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1 Introduction

How does marketing employee turnover influence brand performance? Although extensive literature has examined the negative effects of employee turnover on overall organizational performance (e.g., Shaw, Gupta, and Delery, 2005; Kacmar et al., 2006; Hausknecht, Trevor, and Howard, 2009; Hancock et al., 2013), far less attention has been paid to the specific consequences of marketing employee turnover on brand performance. Estimating this effect is challenging because the impact of employees on brand performance is often indirect, may differ meaningfully depending on the type of employee, and can be difficult to separate from industry-specific time trends in small samples, even though measuring marketing employee impact is crucial for understanding the value of marketing in modern organizations. Moreover, although modern marketing increasingly demands a blend of more traditional and more digital responsibilities (Kane et al., 2017; Schaarschmidt, Walsh, and Ivens, 2021), surprisingly little is known about the differential impacts of employee turnover in different roles.

In this paper, we tackle these questions directly with a novel panel dataset that combines detailed employee position data from Revelio Labs along with comprehensive brand performance metrics from YouGov BrandIndex, covering 477 firms between 2012 and 2020. Using both direct two-way fixed effects (TWFE) estimation and a peer-of-peer instrumental-variables strategy combined with TWFE, we establish a

strong causal link between marketing employee turnover and brand performance that declines monotonically as seniority declines, and with much larger measured effects for employees in digital roles and for employees who find similar- or higher-ranked marketing employment within six months ("successfully reemployed").

First, we estimate the impact of marketing employee turnover using an exhaustive two-way fixed effects approach, comparing changes in brand buzz and brand equity after controlling for both firm and industry-specific time fixed effects. This estimator allows us to isolate the effect of turnover from other average differences across firms, and net of each separate industry's time trend. We measure marketing employee turnover as the number of marketing employees exiting the firm in a given quarter, stratified by seniority level. With this, we find that a single turnover by a senior marketing executive is associated, on average, with a decline in brand buzz of roughly 3.9% of the median within-firm standard deviation and a decrease in brand equity by approximately 1.5%; this result extends prior literature that examined CMO effects on firm performance, and provides additional evidence that marketing executive turnover also damages brand performance (Nath and Mahajan, 2011; Germann, Ebbes, and Grewal, 2015; Bansal et al., 2017; You et al., 2020; Varma, Bommaraju, and Singh, 2023). Furthermore, we find that turnover among mid-level managers and junior staff—previously unstudied in the literature—yields significantly negative (though progressively smaller) effects. Finally, when we estimate the effects of all levels jointly, we find that controlling for turnover among lower-level employees re-

duces the measured importance of senior employees by around 40%, suggesting that an important part of the causal pathway by which senior employee turnover affects brand performance is through associated lower-level employee departures.

Next, to assess the persistence of these turnover effects, we construct a forward measure of brand performance as the average over the future three-quarter window and estimate the impact of current-quarter turnover in this longer time-span. We recover significant, but slightly smaller, effect estimates as compared to our baseline specification, indicating that the negative effects on both brand buzz and brand equity endure beyond the initial quarter, though their magnitude gradually decays over time. This attenuation suggests that while firms may partially recover from the immediate disruption through internal adjustments or the assimilation of new talent, the cumulative loss in marketing expertise still results in significant long-term deterioration of brand performance.

Second, we examine how this effect differs not only across seniority levels, but also across particular employee roles. Specifically, given the rise of digital marketing over the last two decades, we stratify our observed turnover to separately estimate effects for marketing employees in digital (such as Chief Digital Officer, Digital Marketing Manager, SEO/SEM Specialist, or Social Media Manager) versus non-digital roles, and find that the turnover of digital marketing employees leads to much larger measured effects: while ratios vary across specifications and seniority levels, we generally recover more than 5x larger effects for digital marketing employee turnover.

Third, we break down the heterogeneity of this effect across marketing employee types. Here, we exploit the richness of our data to account for the fact that turnover can alternately be associated with high employee performance or with low employee performance: employees may be either highly competent at their position and so are able to secure another similar (or better) job at another firm; or they may be underperformers that are fired or laid off. These two types of turnover may reasonably be expected to have very different effects. To separate these in our data, we leverage our comprehensive employment history panel to delineate between employees that are later "successfully reemployed" (SRE)—employees that find a similar or higher-ranked position within six months of their exit—versus "non-reemployed" (NRE)—employees that do not find any marketing jobs after their exit. With this, we find that the loss of SRE marketing employees is over seven times more harmful to brand performance than the average baseline effect, while the loss of NRE marketing employees on brand equity has an effect that's only 40% of the baseline effect, across seniority levels. As we expect SRE employees to be most similar in competence to their colleagues who do not exit (since we hypothesize that competent employees generally have the option of either staying in their jobs or seeking employment elsewhere, while NRE employees are likely less effective than stayers) these estimates strongly corroborate that retaining marketing employees is of central importance to brand image maintenance.

With this set of baseline estimates in hand, we then perform a set of robustness checks to confirm the reliability of our approach and findings. First, we validate our

specification with a placebo test by regressing future marketing employee turnover against current brand buzz and equity, directly testing for reverse causality, and recover null effects. Second, we construct an "event-study"-like estimator, with lagged and lead indicators of exits, in order to examine whether confounding pre-trends may be associated with turnover; while we do not use this as our main estimator due to econometric concerns,[1] we find null pre-trends and similar contemporaneous effects. Third, to further assuage potential endogeneity concerns, we implement an instrumental variables strategy based on employee turnover at peer-of-peer firms—defined based on connected granular-industry classifications—as an instrument for a firm's own marketing employee turnover. Intuitively, this instrument is based on the fact that employee labor markets may be correlated across firms that are otherwise not closely related; and peer-of-peer firm turnover can capture variation in labor market opportunities that drives employee turnover independent of any firm-specific contemporaneous confounds. (We also include higher-level industry-time fixed effects in this IV estimator, and so continue to control for broader industry trends here as well.) This IV approach recovers large and significant negative impacts of employee turnover on brand performance, larger than in our baseline two-way fixed effects model, but very similar to our estimates of SRE marketing employees. Given that the variation from this peer-of-peer turnover instrument correlates with tighter labor

[1] As with analyses of advertising's effects, exits are challenging to study in event study specifications since they are generally a continuous flow, and so e.g. controlling for lagged exits can lead to significant econometric issues, including high multicollinearity and other concerns. We discuss these issues in greater detail in Section 4 below.

markets (lower unemployment), which in turn drives increased exits across firms, we infer that the local average treatment effect of this IV estimator is likely identified by high-quality employee exits in periods of increased cross-firm job opportunities, which are most directly comparable to our estimates of SRE employee exit effects. In either case, these IV estimates strongly corroborate our main effects, and suggest that our full sample estimates may be best interpreted as conservative lower-bounds. Finally, we also present results that exclude observations from 2020 that may coincide with COVID-19, in case pandemic-era observations are for that reason confounded, and recover highly similar effect estimates.

Taken together, our results provide robust, novel evidence that marketing employee turnover negatively impacts brand performance. We quantify both immediate disruptions and longer-term decay in brand buzz and equity from such turnover, validating our findings through placebo tests and instrumental-variables analysis, and thereby recover a clear, quantified measure of the brand value that firms preserve by retaining their marketing talent. While our estimates most directly inform managerial understanding of the effects of marketing employee turnover, we remark that our empirical design closely mirrors the "value-added" labor economics literature, such as Chetty, Friedman, and Rockoff (2014), which infers the performance impact of employees by examining the effects of their removal; in this same vein, we argue here that our estimates implicitly test whether marketing employees matter for brand performance, since if marketing employees had no impact, one would expect null ef-

fects from marketing employee turnover as well (or even positive effects, if freed-up resources from deadweight employees led to gains).[2] In this light, our findings offer novel, rigorous evidence that marketing employees are significantly important for brand performance and underscore the need for firms to safeguard critical marketing roles, particularly those involving digital expertise.

The rest of the paper is structured as follows. Section 2 describes related literature. Section 3 details the data and sample construction methodology. Section 4 presents baseline empirical results. Section 5 present robustness analyses. Section 6 concludes.

2 Literature Review

Our paper contributes to several literature streams. First, this paper contributes to the large empirical literature on the determinants of brand equity and brand performance, which includes Srinivasan, Park, and Chang (2005) and many others; for extensive literature reviews, see Keller and Lehmann (2006) and Parris and Guzmán (2023). More specifically, this paper contributes to the empirical literature on the importance of marketing employees in building and maintaining brand performance. To date, this literature has focused on high-level executive effects, such as in Germann, Ebbes, and Grewal (2015), who find that Chief Marketing Officers (CMOs)

[2]Since marketing employee turnover may be associated with both hirings and replacement hires, such a test of marketing employee "value-added" will likely be conservative, as the negative impact of losing an employee will be attenuated by the positive impact of their possible replacement; as such, null effects could suggest either that marketing employees have little impact or that they are easily replaced. But significant negative effects, we argue, clearly establish that marketing employees do have positive impacts on brand outcomes.

have a significant positive impact on firms' Tobin's q; Bansal et al. (2017) who find deviations in CMO compensation schemes have an adverse impact on operating performance and stock returns; Nath and Mahajan (2011) who examine how specific firm factors determine CMO role and importance; as well as Varma, Bommaraju, and Singh (2023), who examine how female CMOs differ from male counterparts. You et al. (2020) provide an survey of this research on the role of executives in firm performance, and in particular firm profitability and financial performance, including both CMOs and CEOs. Our paper advances this literature with a newly robust, large-scale analysis based on hundreds of firms over a long time period, rigorously identifying the role of marketing employees on brand performance by examining the effects of employee turnover. Moreover, the present work provides, to the best of our knowledge, first-of-its-kind evidence on the importance of mid-level and junior marketing employees in brand performance, filling an important gap in prior literature (Field, Hancock, and Schaninger, 2023).

Second, this paper contributes to the management and labor economics literature on employee turnover and its effects on firms. This literature includes Moon et al. (2022), who estimate precise negative impacts of turnover for factory performance; Li et al. (2022), who estimate negative impacts of of employee turnover on firms' future financial performance; Kacmar et al. (2006) and Shaw, Gupta, and Delery (2005), who find negative effects of turnover on unit- or employee-level performance; Impink, Prat, and Sadun (2025) who find that executive turnover may also negatively impact

internal communications; and Hausknecht, Trevor, and Howard (2009) who find negative effects of high turnover on customer service quality. For more comprehensive surveys of this literature, see Hancock et al. (2013) and Hom et al. (2017). Generally speaking, these studies have previously been constrained to settings where productivity is easy to measure, like factories or financial performance, and for this reason has, with limited exceptions (Hausknecht, Trevor, and Howard, 2009), overlooked marketing employees, as marketing-related outcomes, such as brand perceptions, are often difficult to quantitatively measure at scale. Our study advances this literature by leveraging a large-scale panel on firm-level brand equity and brand buzz to analyze the effect of marketing employee turnover on brand performance, and then furthermore examine how this effect is moderated by employee seniority, employee role, and employee type.

Finally, this paper contributes to the literature on the importance of digital marketing in brand performance. To date, this literature has predominantly focused on the differential performance of marketing campaigns and advertisements on digital versus traditional channels (Draganska, Hartmann, and Stanglein, 2014; Dinner, Heerde, and Neslin, 2014; Song, 2024), presenting consistent evidence that digital marketing activities can, in many contexts, be more cost-effective than traditional marketing strategies (albeit with important nuances and potential caveats, depending on the setting). For a more extensive literature review of this empirical literature, see Basimakopoulou, Theologou, and Tzavaras (2022). Our study offers a novel empir-

ical design to approach this question, examining whether employee impact on brand performance differs between those in digital versus non-digital marketing roles, and providing strong new evidence that digital marketing employees have a significantly larger impact on brand outcomes.

3 Data

3.1 Brand Performance Metrics Data: YouGov

Our primary outcomes data come from YouGov BrandIndex. This BrandIndex dataset is based on online surveys of consumer perceptions of a wide set of brands, collected from 5000 randomly selected consumers (out of a panel of 5 million consumers) on a daily basis. This repeated-panel approach is designed to produce responses that are stable over time, allowing for panel analysis of brands over a continuous multiyear period.[3] These data have been used extensively in the marketing literature in recent years as a standard measure of brand performance (e.g., Hewett et al., 2016; Colicev et al., 2018; Malshe, Colicev, and Mittal, 2020).

To measure the overall strength of each brand, we follow YouGov's own methodology (and prior literature) and compute "brand equity" as the average of the following six YouGov dimensions: Impression, Quality, Value, Recommendation, Corporate

[3]Importantly, YouGov ensures the consistency of measures by keeping the same survey questions throughout the panel's existence, and maintains a representative sample through standard re-weighting on observable participant characteristics.

Reputation, Satisfaction.[4] To capture more recent changes in brand performance, we use YouGov's "brand buzz" measure, which captures whether people have heard anything positive or negative about a brand recently. This short-term measure provides a more immediate index of net positive buzz for each brand in its survey. As we only consistently observe our employee turnover metrics at the firm and quarter level, we average these brand performance statistics to the firm-quarter level prior to merging to our Revelio data, described below.[5] The industry variable in the YouGov dataset is used to determine industry categorizations, which we use in our subsequent analyses to control for industry-specific time fixed effects. For further details on the YouGov dataset, see Online Appendix A.

3.2 Job Transition Data: Revelio Labs

Our measure of marketing employee turnover comes from Revelio Labs' individual-level position data.[6] Revelio Labs is a third-party data provider that sources workforce data from a variety of publicly accessible datasets including public employment records and online professional profile and resume websites, such as LinkedIn. It covers both public and private companies and includes around 20 million companies worldwide, and over 400 million active positions. As most of the data sources do not rely on firm-level disclosure, Revelio data is free from firm reporting bias, and has

[4]Exact survey questionnaire is reported in Online Appendix A.

[5]We also perform robustness analyses using brand-level data, presented in the online appendix; results are highly similar.

[6]For more detail, see https://www.data-dictionary.reveliolabs.com/data.html#individual-level-data; https://wrds-www.wharton.upenn.edu/pages/about/data-vendors/revelio-labs/.

been used increasingly often in academic research to measure job turnover rates (Li et al., 2022; Cai et al., 2024).

The Revelio panel covers 102,106,715 individuals with job histories dating from 2008 to 2023. These jobs data include information on employer company, position start and end dates, job role, job category, seniority and salary. Revelio also provides ancillary information on the companies tracked including CIK and NAICS codes as well as company names, which we use to match the data to YouGov brands. Since not all employees share their employment information online, the Revelio datasets likely are most representative of white collar occupations, which aligns closely with the focus of this paper on marketing employees. Moreover, we include industry-specific time fixed effects in all of our empirical specifications to ensure that any potential confounds related to changing representativeness over time does not drive our results.

From these raw individual-by-position data, we construct a quarterly panel dataset of marketing employee turnover at each seniority level for each firm. We restrict the data to marketing employees and stratify our sample across three levels: senior executives; mid-level managers; and entry-level juniors.[7] We define "turnover" as any instance when marketing employees of the given seniority level depart their previous positions at a given company and does not take a new position at the same company. We also compute the number of current employees at each company, in each quarter,

[7]We classify seniority levels based on the raw descriptions of job titles using a modified two-step LLM approach, inspired by the classification approaches of Hanley and Hoberg (2019), Gennaro and Ash (2022), and Ash and Hansen (2023). For further details as well as robustness to alternative classification approaches, see Online Appendix B.

as a control variable.

3.3 Final Sample Construction

We merge YouGov and Revelio Labs datasets based on the quarter of observation and firm. For firm matching, we merge first on CIK codes (for publicly traded firms) and direct company name matching and then, for a small remainder, extend this match through fuzzy matching of company names confirmed with manual checks. For example, in fuzzy matching brand "libertymutual" in YouGov is matched with "Liberty Mutual Insurance Company" in Revelio, "volkswagen" is matched with "Volkswagen AG", and "draftkings" is matched with "DraftKings, Inc." For more details on our matching process, see Online Appendix C. We then restrict our sample to firms that we observe in our panel continuously across all dates to ensure a balanced panel. After each of these steps, our final dataset contains 477 firms, observed over 31 quarters from November 13, 2012 to June 30, 2020, leaving us with 14,787 firm-quarter observations in our final analysis sample.[8] Descriptive statistics are presented in Table 1.

[8]Note that we can only match to job turnover data at the firm level, and so aggregate brand measures to the firm level with averaging; for multi-brand firms, brand metrics therefore represent the average brand performance across all brands in our sample that belong to the given firm. (In robustness analyses, we use brand-level data and recover highly similar effects, presented in Online Appendix G.) Our sample of 477 firms derives from brand-level data on 765 associated brands.

Table 1: Summary statistics for marketing employee turnover and brand performance

Variable	Mean	SD	Mean SD by firm	Median SD by firm
Senior executive turnover	3.08	7.90	1.85	0.50
Mid-level manager turnover	13.12	39.25	5.26	0.81
Junior employee turnover	40.36	122.43	13.56	1.64
Total turnover	56.61	160.78	18.27	1.98
Log no. of current employees	4.85	3.77	0.14	0.11
Brand buzz	4.43	4.71	1.08	0.67
Brand equity	11.68	9.90	1.30	0.91
No. of observations				14787

Note: The table presents summary statistics of our balanced panel at the firm-quarter level. Turnover refers to the number of marketing employees at a certain seniority level who leave a given firm during a specific quarter. Current employees refers to the total number of employees working at a given firm during the quarter. Brand metrics are averaged across all brands under each firm.

4 Empirical Results

4.1 Baseline Specification

We rely on an exhaustive two-way fixed effects specification to identify the effect of marketing employee turnover on brand equity and brand buzz:

$$y_{it} = \sum_s \beta^s \ exit_{it}^s + \theta X_{it} + \mu_i + \gamma_{gt} + u_{it}. \tag{1}$$

where y_{it} represents our measure of brand performance metrics (either average brand equity or brand buzz) for all brands held by firm i at a given quarter t. As described in Section 3.1, brand buzz measures the short-term "net" positive impressions of the brands of a given firm while brand equity measures the long-term overall perception

of a firm's brands. μ_i denotes the firm fixed effect and γ_{gt} denotes the industry g specific time fixed effect. X_{it} is the matrix of time-varying firm characteristics of firm i that act as additional control variables. $exit_{it}^{s}$ measures the number of employees leaving the focal firm whose job roles are marketing-related and are at seniority level s. The parameter β^s therefore captures the average "treatment" effect of one marketing employee turnover of seniority s on brand buzz or brand equity. We present specifications that separately examine each seniority level s—capturing the "total effect" of a given turnover at that level—and a saturated specification that simultaneously regresses against turnover across all seniority levels.

The key identifying assumption of this identification strategy is that marketing employee turnover is not systematically correlated with other potential contemporaneous drivers of changes in brand buzz or brand equity. To support this assumption, we first and foremost include firm fixed effects and industry-time fixed effects in all of our estimated empirical models, ensuring that we identify our effect by comparing changes within a given firm to changes in other firms, after controlling for the average industry-specific change in that period. This "differences-in-differences"-style specification intuitively compares differential changes in brand buzz/equity for firms that experience different levels of marketing employee turnover. We also add controls for firm size, measured as the logarithm of the number of employees, to ensure that time-varying differences in overall firm size do not drive our results.

Results from this baseline specification are presented in Table 2. In columns (1)

Table 2: Effects of marketing employee turnover on brand buzz and brand equity

	Brand buzz				Brand equity			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No. of senior	−0.026***			−0.015***	−0.014***			−0.0088
executive exits	(0.0036)			(0.0043)	(0.0038)			(0.0045)
No. of middle		−0.0078***		−0.0058***		−0.0041***		−0.0044***
manager exits		(0.000 97)		(0.0012)		(0.0010)		(0.0013)
No. of junior			−0.0014***	0.000 15			0.000 004 6	0.0011*
employee exits			(0.000 36)	(0.000 42)			(0.000 38)	(0.000 44)
Log no. of	−0.32***	−0.30***	−0.34***	−0.29***	0.10	0.11	0.072	0.11
current employees	(0.068)	(0.068)	(0.068)	(0.068)	(0.072)	(0.072)	(0.072)	(0.072)
Observations	14787	14787	14787	14787	14787	14787	14787	14787
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.912	0.912	0.912	0.912	0.978	0.978	0.978	0.978

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Two-way fixed effect regressions for effects of marketing employee turnover at different seniority levels on brand buzz and brand equity with industry specific time fixed effect. Sample based on brand metric data from YouGov and job turnover data from Revelio. Turnover refers to the number of marketing employees at a certain seniority level who leave a given firm during a specific quarter. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; Specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are reported in parentheses.

and (5), we present results from regressions of senior executive turnover on brand buzz and brand equity, respectively. We find a highly significant effect of senior marketing executive turnover on both measures, with one senior marketing executive turnover leading to a decline of 0.026 in brand buzz, roughly 3.9% of a median within-firm standard deviation, and a decline of 0.014 in brand equity, roughly 1.5% of a median within-firm standard deviation. In columns (2) and (6), we present results for mid-level managers. We find a smaller significant effect of mid-level marketing manager turnover on both measures, with one mid-level marketing manager turnover leading to a decline of 0.0078 in brand buzz, roughly 1.2% of a median within-firm standard deviation, and a decline of 0.0041 in brand equity, roughly 0.45% of a median within-firm standard deviation. In columns (3) and (7) we present results for entry-level juniors. We find a small but significant effect of juniors on the short-term measure

of brand buzz in the singular regression and a null effect in the saturated regression that controls for turnover at other levels, and find null impacts of junior turnover on brand equity in singular regression and very small positive effects in the saturated regression.[9] Finally, we present the results for saturated regressions in columns (4) and (8). Consistent with our main findings, we observe negative effects of marketing executive and manager turnover on both brand buzz and brand equity, but with smaller effect sizes, indicating that a large proportion (roughly 40%) of the negative impacts of senior executive turnover are driven by their indirect effect on the turnover of lower-level employees. We present results from specifications with alternate sets of controls in Online Appendix D.[10]

These results suggest that marketing employees have significant effects on brand performance metrics across seniority levels, with marketing employee turnover causing significant declines in both short-term brand buzz and long-term brand equity even for mid-level marketing managers and (for brand buzz metrics) junior employees. Overall, we find that more senior marketing employees have, in line with their increased responsibilities, a larger impact on brand performance: based on a Wald test of the comparative stacked regressions in columns (4) and (8), we find that senior

[9]In later sections, we show that this small positive average impact of junior turnover on brand equity is driven by small positive effects from shedding junior staff that are not later reemployed (NRE), in sharp contrast to significant negative effects from losing junior staff that shortly acquire similar- or higher-ranked marketing jobs (SRE). We interpret this as suggesting that laying off underperforming junior staff can be salutary for brand equity, and that such turnover accounts for a relatively high proportion of junior staff turnover.

[10]We also present results from specifications in which seniority levels are defined solely based on keyword classifications, without incorporating the embedding-based approach, in Table A1 in Online Appendix A.

executive turnover has a significantly larger negative effect than mid-level manager turnover on both brand buzz ($p = 0.028$), while mid-level manager turnover has a significantly larger negative effect than entry-level junior turnover on brand buzz ($p = 0.000021$) and brand equity ($p = 0.00020$).

4.1.1 3-Quarter Forward-Looking Window

These baseline findings show that marketing employee turnover significantly negatively affects brand buzz (across seniority levels) and brand equity (for mid-level and higher) in the quarter of the turnover. At the same time, one may be concerned that these results may fail to capture the total effect of marketing employee turnover because we only measure the immediate-term, and not long-term, impacts of marketing employee turnover. To the extent that there is long-lasting damage to brand performance metrics following employee turnover, these estimates may fail to capture the full importance of such employees. Therefore, to complete our analysis, we here examine the effect of marketing employee turnover on brand performance in subsequent quarters, beyond the contemporaneous period.

Specifically, we construct two forward-looking brand metric variables that take the average of brand metrics over the future three quarters. Formally, we define $avg\_next3\_y_{it}$, the forward-looking brand metric of firm i at time t, as the average of brand metrics at time $t+1, t+2, t+3$, i.e. $avg\_next3\_y^s_{it} = \sum_{h=1}^{3} y_{i,t+h}$. We then evaluate the effect of current quarter turnover on these forward-looking brand perfor-

Table 3: Effects of marketing employee turnover on average future 3-quarter brand buzz and brand equity

	Brand buzz				Brand equity			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No. of marketing	−0.016***			−0.0090*	−0.012**			−0.0062
executive exits	(0.0034)			(0.0040)	(0.0038)			(0.0045)
No. of marketing		−0.0045***		−0.0035**		−0.0042***		−0.0043***
manager exits		(0.000 88)		(0.0011)		(0.000 98)		(0.0012)
No. of marketing			−0.000 86**	0.000 083			−0.000 36	0.000 65
junior exits			(0.000 32)	(0.000 38)			(0.000 36)	(0.000 42)
Log no. of	−0.37***	−0.36***	−0.39***	−0.36***	0.069	0.086	0.053	0.084
current employees	(0.062)	(0.063)	(0.063)	(0.063)	(0.069)	(0.070)	(0.070)	(0.070)
Observations	14787	14787	14787	14787	14787	14787	14787	14787
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.937	0.937	0.937	0.937	0.983	0.983	0.983	0.983

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Two-way fixed effect regressions for effects of marketing employee turnover on next 3-quarter brand buzz and brand equity. Sample based on brand metric data from YouGov and job turnover data from Revelio. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; Specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are reported in parentheses.

mance metrics. This forward-looking measure captures the average effect of employee turnover over the following three quarters in a one-year window, thereby measuring the effects over a considerably longer time period and capturing the combined effect on an annual scale. Formally, our econometric specification is

$$avg\_next3\_y_{it} = \sum_s \beta^s \ stock\_exit^s_{it} + \theta X_{it} + \mu_i + \gamma_{gt} + u_{it}. \tag{2}$$

Table 3 reports the results. We find consistent patterns indicating that marketing employee turnover has a significant negative effect on long-term brand buzz and brand equity, with their influence on brand performance metrics slightly diminishing as employee rank decreases. This confirms that marketing employee turnover has a

long-term negative impact on brand performance metrics in addition to the contemporaneous effect. That said, the effect sizes are smaller compared to the current-quarter effects, suggesting a decaying impact of employee turnover over time. We theorize that this likely arises due to firms hiring new personnel or reassigning job responsibilities to existing staff, which presumably helps the firm recover from the employee exit.

4.2 Heterogeneous Effects

With these baseline results established, we next turn to examining heterogeneity in effects of marketing employee turnover across employee roles and employee types. With this, we seek to both establish insight into which marketing employees provide the greatest value-added to their brands and to decompose hard-to-interpret average effects into separate empirical estimates for the effects of losing high performers versus the effects of shedding underperforming staff.

4.2.1 Digital-Related Positions

First, we examine the differential impact of employee turnover by role, as one may expect that the impact of marketing employee turnover may depend not only on their hierarchical level but also on their specific function within the organization. In particular, the rapid digitization of marketing over the past few decades has created multiple novel roles that primarily demand emerging knowledge encompass cutting-

edge digital marketing technologies and tools —such as Chief Digital Officer, Digital Marketing Manager, SEO/SEM Specialist, and Social Media Manager. According to a knowledge-based theory (Grant, 1996) of the firm, the impact of employee turnover on firm performance could depend on the relative risks of losing relevant knowledge, which could differ systematically across digital versus non-digital roles if digital positions are harder (or easier) to refill due to tighter (more slack) labor markets (Kane et al., 2017; Schaarschmidt, Walsh, and Ivens, 2021; Li et al., 2022); if duties of employees in such roles affect customers more (or less) directly; or if digital outputs are more (or less) demanding of employee maintenance. One may argue, for example, that roles such as Social Media Manager are non-essential for brands and are simply trend-chasing, while others may consider such roles as especially crucial in brand-building.

To test which hypothesis may hold in our context, we identify digital job positions in our data, defined as those with job titles broadly associated with terms such as "digital," "influencer," "platform," "mobile," "web," or "social media", and separately measure employee turnover of those in digital versus non-digital roles.[11] We then add interaction terms to our baseline model and estimate how the effect of turnover changes depending on whether the exiting employee holds a digital versus non-digital role.

Results are presented in Table 4. Overall, we find that the turnover of marketing

[11] We use a modified two-step LLM-based approach similar to the one used for classifying seniority levels based on job titles. Details are provided in Online Appendix B.3.

Table 4: Effects of digital versus non-digital marketing employee turnover on brand buzz and brand equity

		Brand buzz				Brand equity			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Main effect	No. of marketing executive exits	−0.016*** (0.0047)			−0.0040 (0.0053)	−0.0044 (0.0050)			0.0019 (0.0056)
	No. of marketing manager exits		−0.0056*** (0.0015)		−0.0046** (0.0016)		−0.000 25 (0.0015)		−0.0013 (0.0017)
	No. of marketing junior exits			−0.000 18 (0.000 41)	0.000 82 (0.000 45)			0.000 97* (0.000 43)	0.0015** (0.000 47)
Interaction effect	No. of digital marketing executive exits	−0.063*** (0.018)			−0.060** (0.018)	−0.056** (0.019)			−0.048* (0.020)
	No. of digital marketing manager exits		−0.015* (0.0075)		−0.0021 (0.0078)		−0.027*** (0.0080)		−0.018* (0.0083)
	No. of digital marketing junior exits			−0.028*** (0.0043)	−0.020*** (0.0045)			−0.021*** (0.0046)	−0.014** (0.0048)
	Log no. of current employees	−0.32*** (0.068)	−0.29*** (0.068)	−0.33*** (0.068)	−0.28*** (0.068)	0.10 (0.072)	0.12 (0.072)	0.08 (0.072)	0.12 (0.072)
	Observations	14787	14787	14787	14787	14787	14787	14787	14787
	Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	R^2	0.912	0.912	0.912	0.912	0.978	0.978	0.978	0.978

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Two-way fixed effect regressions for effects of digital and non-digital marketing employee turnover at different seniority levels on brand buzz and brand equity. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are reported in parentheses.

employees in digital roles has substantially larger impacts on brand buzz and brand equity compared to their counterparts in non-digital roles. In columns (1) and (4), we present regression results for digital (as the interaction effect) on top of the baseline senior executive turnover on brand buzz and brand equity, respectively. Digital senior marketing executive turnover has highly significant effects on brand buzz and on brand equity, with one senior marketing executive turnover resulting in a decline of 0.079 in brand buzz (approximately 11.8% of a median within-firm standard deviation) and a decline of 0.060 in brand equity (approximately 6.6% of a median within-firm standard deviation).

By contrast, the effects of non-digital employees are estimated to be much smaller.

One senior marketing executive turnover among non-digital employees leads to a decline of 0.016 in brand buzz (approximately 2.4% of a median within-firm standard deviation) and a decline of 0.0044 in brand equity (approximately 0.48% of a median within-firm standard deviation). Similar patterns are also observed among mid-level managers and junior employees. These findings suggest that digital marketing employees play a significantly more critical role in determining brand performance.

4.3 Heterogeneity Across Employee Types

While the above demonstrates that marketing employee turnover, on average, exerts a significant negative effect on brand performance, one may reasonably worry that this average effect masks substantial heterogeneity based on the employee type involved. In the broadest sense, turnover is often understood to fall into two general categories: it may result from voluntary exits, generally characterized by high performers leaving their position for another similarly- or higher-ranked job, or involuntary terminations, generally characterized by under-performers being shed. The impact of turnover is very likely to differ meaningfully between these two categories; if e.g. an under-performing marketing executive is dismissed, it is plausible that brand performance could actually improve, as the removal of ineffective decision-makers enables the adoption of better marketing strategies and execution. In contrast, the loss of a high-performing executive may be expected to have a substantially more damaging effect than the average, given their disproportionate contribution to brand success.

This logic extends to mid-level managers and junior employees as well.

To examine such heterogeneity, we classify departing marketing employees based on their future employment path. Namely, we identify successfully reemployed (SRE) marketing employees as those who secure marketing positions at the same or higher level of seniority within 6 months following their departure. Second, we define non-reemployed (NRE) marketing employees as those who do not obtain marketing positions after leaving the firm. While these future-employment-path distinctions may be somewhat coarse proxies for distinguishing the type of separation in any given exit, we note that any measurement noise will likely only attenuate the estimated heterogeneity; for example, some NRE employee exits may be associated with retirements, which could be less closely related to underperformance than other NRE exits. As such, we present these heterogeneity estimates as conservative estimates for the full heterogeneity in turnover effects across types of separation.

Results for SRE employee exits are presented in 5. Here, we find that turnover among SRE marketing employees produces a substantially greater negative impact on brand performance compared to the baseline effect of average marketing employee turnover, whether at the senior executive or junior level. For example, the departure of a single SRE senior marketing executive leads to a decline of 0.17 in brand buzz—equivalent to approximately 25.5% of the median within-firm standard deviation—and a decline of 0.18 in brand equity, or about 19.5% of the median within-firm standard deviation. These executives secure marketing positions with equal seniority within 6

Table 5: Effects of SRE marketing employee (those who find a job with the same or higher seniority level within 6 months) turnover on brand buzz and brand equity

		Brand buzz				Brand equity			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Main effect	No. of senior executive exits	−0.021*** (0.0039)			−0.011* (0.0045)	−0.0077 (0.0041)			−0.0040 (0.0047)
	No. of middle manager exits		−0.0050*** (0.0013)		−0.0027 (0.0015)		−0.000 98 (0.0013)		−0.0014 (0.0016)
	No. of junior employee exits			0.000 38 (0.000 45)	0.000 98* (0.000 48)			0.0011* (0.000 48)	0.0014** (0.000 51)
Interaction effect	No. of SRE senior executive exits	−0.15*** (0.042)			−0.10* (0.044)	−0.17*** (0.045)			−0.12** (0.047)
	No. of SRE middle manager exits		−0.045*** (0.012)		−0.022 (0.013)		−0.049*** (0.013)		−0.030* (0.014)
	No. of SRE junior employee exits			−0.058*** (0.0087)	−0.04*** (0.0093)			−0.035*** (0.0092)	−0.018 (0.0098)
	Log no. of current employees	−0.31*** (0.068)	−0.28*** (0.068)	−0.32*** (0.068)	−0.27*** (0.068)	0.11 (0.072)	0.13 (0.072)	0.088 (0.072)	0.13 (0.072)
	Observations	14787	14787	14787	14787	14787	14787	14787	14787
	Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	R^2	0.912	0.912	0.912	0.912	0.978	0.978	0.978	0.978

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Two-way fixed effect regressions for effects of average and SRE marketing employee turnover at different seniority levels on brand buzz and brand equity. Sample based on brand metric data from YouGov and job turnover data from Revelio. SRE is defined as those who find a marketing job with the same or higher seniority within 6 months after the current exit. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; Specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are reported in parentheses.

months following their exit, which suggests that they either leave voluntarily or are able to find new positions easily due to their high competence.

It is also noteworthy that the exits of SRE mid-level marketing junior employees have a pronounced negative effect on both brand buzz and brand equity. We emphasize this finding in particular in light of the null or even slightly positive average effect of junior marketing employee turnover on brand equity: this shows that, while the departure of other junior employees may have negligible or even positive effects, the loss of high-performing junior employees has a clearly detrimental effect on brand outcomes. For instance, the departure of a single SRE junior marketing employee

Table 6: Effects of NRE marketing employee (those who do not find a marketing job after exits) turnover on brand buzz and brand equity

		Brand buzz				Brand equity			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Main effect	No. of senior executive exits	−0.049*** (0.010)			−0.021 (0.013)	−0.039*** (0.011)			−0.017 (0.014)
	No. of middle manager exits		−0.011*** (0.0023)		−0.0062 (0.0036)		−0.0099*** (0.0024)		−0.0099** (0.0038)
	No. of junior employee exits			−0.0070*** (0.0016)	−0.0015 (0.0021)			−0.0035* (0.0017)	0.0028 (0.0022)
Interaction effect	No. of NRE senior executive exits	0.030* (0.012)			0.0076 (0.015)	0.033** (0.013)			0.011 (0.016)
	No. of NRE middle manager exits		0.0047 (0.0031)		0.0014 (0.0043)		0.0084** (0.0032)		0.0079 (0.0045)
	No. of NRE junior employee exits			0.0066*** (0.0019)	0.0019 (0.0024)			0.0041* (0.0020)	−0.0021 (0.0025)
	Log no. of current employees	−0.31*** (0.068)	−0.29*** (0.068)	−0.33*** (0.068)	−0.28*** (0.068)	0.11 (0.072)	0.12 (0.072)	0.080 (0.072)	0.12 (0.072)
	Observations	14787	14787	14787	14787	14787	14787	14787	14787
	Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	R^2	0.912	0.912	0.912	0.912	0.978	0.978	0.978	0.978

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Two-way fixed effect regressions for effects of average and NRE marketing employee turnover at different seniority levels on brand buzz and brand equity. Sample based on brand metric data from YouGov and job turnover data from Revelio. Turnover refers to the number of marketing employees of a specific role at a certain seniority level who leave a given firm during a specific quarter. NRE is defined as those who do not find a marketing job after the current exit. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; Specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are reported in parentheses.

leads to a decline of 0.058 in brand buzz—equivalent to approximately 8.6% of the median within-firm standard deviation—and a decline of 0.034 in brand equity, or about 3.7% of the median within-firm standard deviation. Overall, the exits of these SRE marketing employees could be more than 7 times more detrimental to brand performance than their peers.

To examine the other side of the coin, we turn our attention to non-reemployed (NRE) marketing employees—those who do not secure marketing positions after their departure, as shown in Table 6.[12] We find that the effect of turnover for such NRE

[12]As noted above, we remark that some individuals in this category may be retiring or not actively seeking subsequent employment, which suggests that our estimate may underestimate the true

employees is much smaller, and in some cases, is close to zero. For example, the departure of a single NRE senior marketing executive results in a decline of just 0.019 in brand buzz—approximately 2.8% of the median within-firm standard deviation—and a decline of only 0.006 in brand equity, or about 0.66% of the median within-firm standard deviation. Such exits may generally reflect the firm's decision to actively dismiss under-performers, and in terms of brand performance, these departures have minimal impact, supporting the rationality of the firm's decision in these cases.

5 Robustness Checks

5.1 Placebo Tests

While these baseline results offer strong suggestive evidence that marketing employees play a significant role in maintaining brand performance, one may be concerned that our two-way fixed effects specification is still affected by other sources of bias. In particular, one may be concerned that the observed relationship between brand performance and marketing employee turnover are not due to the effect of turnover on brand quality, but rather the effect of sustained brand under-performance on subsequent marketing employee turnover. If this were the case, our results would in fact be driven by reverse causality, and our estimates of the importance of marketing employees would be invalid. Similarly, one may be concerned that some third-party,

difference between the turnover effects of NRE employees and the baseline.

unobserved factor drives both below-average brand performance and above-average marketing employee turnover in a given period, such as a scandal that both drives employees to quit and brand performance to nosedive. In both cases, our estimates would be confounded by time-varying, firm-specific deviations from industry-level trends.

Reverse Causality

We test for reverse causality directly by conducting a placebo test of next-quarter marketing employee turnover regressed on current-quarter brand performance. This regression directly examines whether subsequent turnover is plausibly caused by prior brand performance. Formally, we implement the following econometric specification:

$$exit^{s}_{i,t+1} = y_{it} + \theta X_{it} + \mu_i + \gamma_{gt} + u_{it}. \tag{3}$$

The results, shown in Table 7, show null evidence for the hypothesis of lagged reverse causality. Across all metrics and seniority levels, we find statistically zero effects with fairly tight standard errors, suggesting that even on the upper end of the confidence interval, any reverse-causal relationship would be at most quite modest.

Parallel Pre-trends

In a similar vein, we conduct a test for parallel pre-trends—out of concern that high-turnover firms may be evincing declining brand equity prior to any increases in mar-

Table 7: Placebo test of brand buzz and brand equity on next-quarter marketing employee turnover

	Next-quarter marketing executive turnover			Next-quarter marketing junior turnover		
	(1)	(2)	(3)	(4)	(5)	(6)
Brand buzz	−0.0050	0.0040	0.0023			
	(0.0033)	(0.0025)	(0.0028)			
Brand equity				−0.0060	0.0034	0.0043
				(0.0032)	(0.0024)	(0.0026)
Log no. of current employees	−0.021	−0.031	−0.026	−0.019	−0.032	−0.027
	(0.026)	(0.019)	(0.021)	(0.026)	(0.019)	(0.021)
Observations	14787	14787	14787	14787	14787	14787
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.197	0.152	0.155	0.197	0.152	0.155

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Placebo test for effects of marketing employee turnover in the subsequent quarter at different seniority levels on brand buzz and brand equity with industry specific time fixed effect. Sample based on brand metric data from YouGov and job turnover data from Revelio. Turnover refers to the number of marketing employees of a specific role at a certain seniority level who leave a given firm during a specific quarter. Specifications (1) and (4) only examine the effect of senior executive turnover; specifications (2) and (5) only examine the effect of mid-level manager turnover; specifications (3) and (6) use the stacked regression with turnover at both levels. Standard errors are reported in parentheses.

keting employee turnover—with a "lags and leads" specification where we estimate coefficients for 3 quarters of lagged (prior quarter) turnover, contemporaneous turnover, and 3 quarters of lead (future quarter) turnover, pooled across seniority levels. This specification allows us to estimate a traditional "event-study"-like set of coefficients to measure any future effect of turnover (captured by estimated coefficients on future/lead turnover) as well as any lingering effects of turnover (captured by estimated coefficients on past/lagged turnover). We do not use this as our primary specification because exits are in general a continuous flow variable, similar to advertising expenditures in advertising analyses, and just as this type of differences-in-differences style estimation is not generally used in advertising analysis due to econometric concerns, we similarly don't rely on this as a baseline specification because we anticipate issues

of multicollinearity, "bad controls", and difficulties of interpretation.[13] Therefore, we simply present this as an adequate robustness check to examine whether turnover that has not yet occurred has a significant association with future brand equity.

Results are presented in Online Appendix Table A4, shown graphically in Online Appendix Figure A1. We find consistently null "pre-period" effects and significant negative contemporaneous and "post-period" effects; for our longer-term brand metric, brand equity, we recover the most highly significant effects in the quarters after turnover, while our shorter-term brand metric, brand buzz, we recover the most highly significant effect in the contemporaneous quarter, again aligning with intuition, although for the above-noted reasons we caution against over-interpreting the coefficient estimates from this specification. From this, we conclude that confounding pre-trends are highly unlikely to be driving our observed contemporaneous and future-period results.

5.2 Instrumental Variable (Peer-of-Peer) Specification

While the above placebo tests are reassuring, one may still be concerned that there exist contemporaneous, firm-specific confounds that drive both changes in brand performance and marketing employee turnover at the same time. While our previous estimates found no evidence of any confounding pre-trends or reverse causality, those

[13] For example, if turnover is auto-correlated, then including multiple lags and leads in the regression may induce multicollinearity and make it difficult to disentangle the independent effect of turnover at any given point. Moreover, controlling for lagged turnover may introduce mechanical bias by soaking up variation that is part of the causal effect of interest, particularly if the goal is to estimate the full dynamic impact of turnover rather than conditional effects net of past turnover.

models cannot fully rule out the possibility that an unobserved third covariate may drive declines in brand performance and increases in marketing employee turnover in the same quarter. For example, as mentioned above, firm-specific scandals could plausibly drive both turnover and declines in brand performance.

We use an instrumental variables approach to address these concerns. Specifically, we instrument for marketing employee turnover at focal firms using marketing employee turnover of the same seniority level at peer-of-peer companies. We define peer firms of a focal firm as those operating within the same granular-industry specification (defined by 4-digit NAICS code), whereas peer-of-peer firms operate in the same industry as a peer firm but do not overlap with the focal firm's fine-grained industry classification. Intuitively, this instrument captures labor market conditions for marketing employees within a broadly defined set of related firms that explicitly exclude the focal firm and its immediate peers, thereby isolating variation in labor market conditions that is unlikely to be driven by firm-specific factors and potential confounders.[14] We use peer-of-peer firms, and not direct peer firms, since changes at peer firms may more plausibly directly affect brand performance of the focal firm. This instrument is inspired by a rich literature in marketing that uses peer-of-peer instrumental-variables designs to establish causal effects, including Ger-

[14]One may be concerned that peer-of-peer turnover may be higher in worse economic conditions, which could also correlate with worse brand performance, posing a potential threat to the exclusion restriction of our instrument. However, we find in ancillary analysis that that peer-of-peer marketing employee turnover is instead associated with *tighter* labor market conditions, which appears to then drive higher levels of marketing employee turnover: the correlation between the national unemployment rate and average peer-of-peer turnover in each quarter is -0.32, suggesting that improved labor market conditions are associated with higher peer-of-peer marketing employee turnover.

Table 8: IV regression of marketing turnover on brand buzz and brand equity

	Second stage					
	Brand buzz			Brand equity		
No. of marketing executive turnovers	−0.22***			−0.12**		
	(0.037)			(0.037)		
No. of marketing manager turnovers		−0.075***			−0.040**	
		(0.014)			(0.013)	
No. of marketing junior turnovers			−0.030***			−0.018***
			(0.0048)			(0.0045)
Log no. of current employees	0.10	0.39*	0.33*	0.33**	0.48**	0.50***
	(0.11)	(0.16)	(0.14)	(0.11)	(0.15)	(0.13)
Observations	14787	14787	14787	14787	14787	14787
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.893	0.879	0.869	0.976	0.976	0.974
First stage F-stat	34.56	67.33	91.68	34.56	67.33	91.68

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Notes: Instrumental variable regressions for effects of marketing employee turnover at different seniority levels on brand buzz and brand equity. The number of marketing employee turnover among peers-of-peers firms at each corresponding seniority level is used as the instrument. Sample based on brand metric data from YouGov and job turnover data from Revelio. Turnover refers to the number of marketing employees of a specific role at a certain seniority level who leave a given firm during a specific quarter. Standard errors are reported in parentheses.

mann, Ebbes, and Grewal (2015); Shi, Grewal, and Sridhar (2021). For details on the precise construction this instrument, see Online Appendix F. We remark that in our IV regressions, we continue to control for high-level industry-time fixed effects in our econometric specification to account for broader industry-wide shocks.[15]

Results from this instrumental variables specification are presented in Table 8. We recover first-stage F-statistics of over 34 for marketing employee turnover at all three seniority levels, well above the conventional strong-instrument threshold of 10. In our second-stage, we find highly significant effects of instrumented marketing employee

[15]Industry-time fixed effects are based on the higher-level industry classification as categorized in our Revelio BrandIndex data, which divides industries into 82 high-level categories, while we define "peers" here based on the more granular 4-digit NAICS codes industry classifications, which divides industries into 308 categories in our data. This allows us to construct our peer-of-peers instrument, exploiting finer-grained correspondences across more granularly-defined industry codes, while still controlling for high-level industry-time fixed effects in our subsequent IV regressions.

turnover on brand buzz and brand equity. Moreover, we find point estimates that are a full order of magnitude larger than the estimates in our baseline naive two-way fixed effects regression: in this instrument-variables specification, we find that every marketing executive turnover is associated with a 0.22 decline in brand buzz, roughly 32.8% of a median within-firm standard deviation, and a 0.12 decline in brand equity, roughly 13.2% of a median within-firm standard deviation. In both cases, these effect sizes are approximately eight times as large as our baseline "average effect" estimates—but are highly similar to our heterogeneity-model estimates of the effect of SRE employee turnover. This dovetails with our descriptive evidence that the local average treatment effect of this IV estimator corresponds to tighter labor markets—and, by extension, to voluntary exits of highly-qualified employees—presenting convergent evidence that our estimates are not driven by contemporaneous confounds, and that our SRE employee effect estimates in particular represent valid estimates of the effect of marketing employee turnover on brand performance. At the same time, these IV results suggest that our baseline "average effect" estimates may best be interpreted as conservative lower-bounds.[16]

5.3 Dropping COVID-19 Era Observations

Finally, one may be concerned that our panel overlaps slightly with part of the COVID-19 era, when marketing employee turnover and brand performance may have

[16]We note that we cannot perform stacked regression with our IV analysis, as peer-of-peer turnover at different levels is driven by broad labor market conditions and are highly collinear across levels. As such, we only present IV results for the separate-level regressions.

systematically shifted for spurious reasons. As such, we also estimate our specifications with data from 2020 excluded, in order to ensure that none of such potentially-problematic COVID-19 era variation is driving our results. Estimates from this restricted sample are presented in Online Appendix H. Our point estimates are qualitatively identical; for example, the effect of one marketing executive turnover on brand buzz in the stacked regression specification changes from -0.026 to -0.030, with high statistical significance in each case. We interpret this as evidence that our results are not driven by any spurious confounds related to the COVID-19 pandemic. Full tables for this restricted-sample specification are presented in Online Appendix H.

6 Conclusion

Theoretically, one could argue that marketing employee turnover may be expected to help or hurt brand performance. On the one hand, to keep customers satisfied and loyal, firms need to put consistent effort into their brand management activities, which typically is the responsibility of marketing employees. In line with this, turnover of senior marketing executives, mid-level marketing managers, and even junior marketing employees could be detrimental to such efforts as departing employees take their branding skills, experience, and customer relationships with them (Bansal et al., 2017; Hom et al., 2017; Moorman, Sorescu, and Tavassoli, 2024), reducing the cohesiveness of marketing strategy and consistency of marketing tactics (Homburg, Workman, and Jensen, 2000) and potentially damaging brand buzz and brand equity

(Homburg, Müller, and Klarmann, 2011).

On the other hand, retaining marketing talent is costly, requiring competitive salaries, career advancement opportunities, and investment in employee development (Phillips and Connell, 2004; Domeyer, 2019; Steimer, 2020). If one's prior is that the positive value of marketing employees is low, one may expect that shedding marketing employees to have null effects, or even positive effects if such turnover frees up resources to be spent on higher-marginal-benefit marketing pursuits. In this light, testing the effects of marketing employee turnover may be interpreted as a way to implicitly examine the "value-added" of marketing employees with regards to brand performance, providing a conservative statistical test of whether marketing employee exits have a salient impact on brand outcomes.

In this paper, we provide newly comprehensive and robust empirical evidence on the relationship between marketing employee turnover and brand performance, answering this question directly with a novel large-scale panel of 477 firms between 2012 and 2020. Leveraging both direct two-way fixed effects estimation and instrumental-variables TWFE estimation, we identify a consistent causal link between marketing employee departures and declines in brand buzz and brand equity. Our results reveal that senior executive turnover leads to pronounced declines in brand performance, and that mid-level managers and junior employees are also significantly important in maintaining brand buzz and brand equity. As mid-level marketing managers are believed to be the "heart" of the company (Field, Hancock, and Schaninger, 2023),

our results empirically show—for the first time in the empirical literature—that their departure does indeed negatively impact brand performance (Frankwick et al., 1994), providing rigorous new evidence on the value-added of marketing employees across seniority levels.

Our analysis also reveals that the impact of turnover depends critically on the type of departing employees. While average turnover is associated with a negative effect on brand outcomes, we find that turnover involving "successfully reemployed" marketing employees—those who subsequently secure marketing positions of similar or greater seniority within 6 months—has a far more pronounced negative effect on both brand buzz and brand equity, regardless of whether the employee is a senior executive or holds a junior position. In contrast, the departure of "non-reemployed" marketing employees—those who do not obtain new marketing jobs later on—produces much smaller effects on brand performance. Similarly, our results show that turnover among employees in digital marketing roles generates significantly larger negative effects than those in traditional marketing roles, underscoring the critical role of digital expertise in modern brand management.

We then further validate our results with a battery of robustness checks. We test for reverse causality by regressing prior brand performance on future turnover and recover null effects, and test for confounding pre-trends by estimating effects on lagged and lead turnover and similarly find statistically zero effects of future turnover, confirming that reverse causality and confounding pre-trends are unlikely to be driving

our observed main effects. We also implement an instrumental-variables estimator based on marketing employee turnover at peer-of-peer firms and find significant and large effect estimates, similar to our estimates for "successfully reemployed" employee turnover, suggesting that our effects are also not driven by firm-specific contemporaneous confounds (and that the local average treatment effect of our IV estimator is likely identified from the voluntary exits of high-performers in tight labor markets). Finally, analysis that excludes observations from the COVID-19 era recovers highly similar results, confirming that our effects are not driven by any confounds arising from the recent pandemic.

Nonetheless, additional work remains. Examining the specific mechanisms through which marketing employee turnover impacts brand performance is outside of the scope of the present work, but could further shed light on the causal pathway between turnover and brand outcomes. While we hypothesize that disruptions in marketing strategy, loss of institutional knowledge, and weakened consumer engagement play key roles, future research could investigate these pathways more explicitly. Studies leveraging internal firm data, employee surveys, or case studies could provide richer insights into how firms manage marketing turnover and mitigate its adverse effects. Moreover, future research could examine whether the impact of turnover varies by industry, firm size, or market competition, shedding light on other dimensions of potential heterogeneity in our findings.

Another promising avenue for future research would be to study the role of organi-

zational culture and employee retention strategies in mitigating the negative effects of turnover. Firms with strong internal knowledge-sharing mechanisms and structured succession planning may experience less disruption from employee departures. Investigating how different retention strategies—such as compensation incentives, career development opportunities, and flexible work arrangements—affect marketing employee stability and brand performance outcomes could provide actionable insights for practitioners. Additionally, given the growing prevalence of remote work, future studies could explore how virtual collaboration tools and remote work policies influence marketing team cohesion and brand performance.

Finally, our findings raise important questions about the broader implications of workforce dynamics in the marketing profession. The substantial negative impact of digital marketing employee turnover suggests that firms must prioritize talent retention and skill development in this area in particular. Future research could explore how firms navigate the challenges of hiring and retaining digital marketing talent in an increasingly competitive labor market. Additionally, studying the impact of marketing workforce composition—such as the balance between in-house teams and external agencies—on brand performance could provide deeper insights into optimal marketing organizational structures.

In sum, marketing drives brands, but people drive marketing. Losing marketing talent, especially digital marketing talent, hurts brand performance, and firms pay a lasting price. Our findings reveal the painful negative effects of turnover, from senior

executives down to mid-level managers and junior employees, highlighting the importance of continuously investing in marketing teams. In an economy characterized by frequent employee mobility, retaining and nurturing marketing talent is not simply good management—it's essential for sustained brand success.

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Online Appendix

A YouGov BrandIndex Survey Questions

Here we list the YouGov BrandIndex survey questions. The first question links to our brand buzz measure and the next 6 questions links to our brand equity measure.

1. Buzz
   (a) Over the PAST TWO WEEKS, which of the following brands have you heard something POSITIVE about (whether in the news, through advertising, or talking to friends and family)?
   (b) Now which of the following have you heard something NEGATIVE about over the PAST TWO WEEKS?
2. Impression
   (a) Overall, of which of the following brands do you have a POSITIVE impression?
   (b) Now which of the following brands do you have an overall NEGATIVE impression?
3. Quality
   (a) Which of the following brands do you think represents GOOD QUALITY?
   (b) Now which of the following brands represents POOR QUALITY?
4. Value
   (a) Which of the following brands do you think represents GOOD VALUE FOR MONEY? By that we don't mean "cheap," but that the brands offer a customer a lot in return for the price paid.
   (b) Now which of the following brands do you think represents POOR VALUE FOR MONEY? By that, we don't mean "expensive," but that the brands do not offer a customer much in return for the price paid.

5. Recommendation

   (a) Which of the following brands would you RECOMMEND to a friend or colleague?

   (b) And which of the following brands would you tell a friend or colleague to AVOID?

6. Corporate Reputation (not exactly corporate reputation)

   (a) Imagine you were looking for a job (or advising a friend looking for a job). Which of the following brands would you be PROUD to work for. Imagine you (or your friend) were applying for the same sort of role at the following brands that you currently have or would apply for.

   (b) Now which of the following brands would you be EMBARRASSED TO WORK FOR? Imagine you (or your friend) were applying for the same sort of role at the following brands that you currently have or would apply for.

7. Satisfaction

   (a) Of which of the following brands would you say that you are a "SATISFIED CUSTOMER"?

   (b) Of which of the following brands would you say that you are a "DISSATISFIED CUSTOMER"?

B Details on Employee Classification Data and Protocols

B.1 Employee Role and Seniority Classification

In the Revelio Labs individual position data, we first identify marketing employees using the "MAPPED ROLE" variable, which broadly defines the job responsibilities of each employee. Revelio employs a proprietary algorithm to aggregate position roles into 1500 discrete levels for this variable. Here is the complete list of job roles that we select as marketing-related employees: account coordinator, account services, actor, advertising, affairs, ambassador, animator, art, artist, brand, brand ambassador, brand marketing, brand representative, branch sales, business sales, campus ambassador, campaign, client service representative, comercial, commercial, commercial account, commercial officer, commercial sales, communication, communications, communications consultant, communications coordinator, community, community relations, consumer marketing, content, content analyst, content creator, contributor, copywriter, costumer service, creative, creative services, crm, customer, customer account, customer advocate, customer analyst, customer care, customer care representative, customer consultant, customer development, customer engineer, customer engagement, customer marketing, customer operations, customer relations, customer representative, customer sales, customer service, customer service agent, customer service analyst, customer service consultant, customer service coordinator, customer service engineer, customer service officer, customer service sales, customer service sales representative, customer services, customer services agent, customer solutions, customer success, customer support, customer support engineer, customer support representative, design, design consultant, designer, digital, digital account, digital designer, digital marketing, digital media, digital product, digital project, digital sales, e commerce, ecommerce, editorial, editor, event, event coordinator, events, game designer, government affairs, graphic artist, graphic design, graphic designer, hospitality, industrial designer, innovation, instructional designer, interaction designer, journalist, key account sales, knowledge, market, market access, market analyst, market development, market research, market research analyst, market sales, marketing,

marketing analyst, marketing business development, marketing communication, marketing communications, marketing consultant, marketing coordinator, marketing officer, marketing operations, marketing product, marketing project, marketing representative, marketing research, marketing sales, marketing services, marketing strategic, media, media buyer, media planner, media relations, merchandise, merchandise planner, merchandising, merchandiser, merchant, model, online, online marketing, outside sales, outside sales representative, photo, photographer, pr, press, pricing, pricing analyst, producer, product, product analyst, product consultant, product design, product designer, product development, product development engineer, product engineer, product engineering, product marketing, product sales, product support, production artist, products, programming, promotions, promoter, promotor, public affairs, public relations, relations, reporter, retail, retail account, retail consultant, retail marketing, retail operations, retail sales, retail sales consultant, retail sales representative, retail salesperson, retail store, retention, sale, sales, sales account, sales administration, sales administrator, sales agent, sales analyst, sales business development, sales consultant, sales coordinator, sales customer service, sales development, sales development representative, sales marketing, sales marketing coordinator, sales officer, sales operations, sales operations analyst, sales promoter, sales representative, sales sales, sales service, sales service representative, sales support, sales support representative, salesman, salesperson, seo, service, service sales, services sales, seller, social media, social media marketing, stage, store sales, strategic marketing, technical marketing, technical writer, telemarketer, telemarketing, telesales, trade marketing, translator, ui designer, ui ux designer, user, user designer, user researcher, ux designer, ux ui designer, video editor, virtual, visual, visual designer, visual merchandising, visual merchandiser, web designer, writer.

In the individual position data, Revelio Labs generates a seniority metric using proprietary algorithms. This metric is based on information such as an individual's job title, company, industry, previous job history, and age, and it is initially expressed as a continuous variable. Revelio Labs then converts this continuous seniority metric into one of seven discrete levels. However, there are some evident misclassifications that require attention. For example, titles like "CMO, Project Lantern - Google X" and "Senior Vice President, Digital Product Management" are classified at the lowest

seniority level, while "Executive Assistant to Global CMO, Global CSO, and Global Retail Director, KFC" is classified at the highest seniority level. More concerningly, the title "CMO" appears across all seven levels.

To address these inconsistencies, we reclassify the seniority levels using a two-step approach based on a Large Language Model (LLM). Since we do not have a sufficiently large labeled dataset linking job titles to seniority levels for direct LLM training, we adopt the following strategy. In the first step, we assign seniority levels according to keywords found in the job titles. For example, if "CMO" appears in the job title and there are no other keywords such as "assistant to", the position is classified as a senior executive. As another example, if "intern" appears in the job title, it is classified as a entry-level junior. In the second step, the job titles assigned via keywords serve as "labeled data"; we then use the distilled version of the RoBERTa base model to generate text embeddings and compute cosine similarities. Unassigned job titles are matched to the seniority level of the keyword-based titles to which they are most similar. Similar dictionaries-augmented-with-machine judgment classification has been used in prior economics and finance literature where people specify an initial set of seed words for a particular concept and use word embeddings to populate this set with words near the seeds (Hanley and Hoberg, 2019; Gennaro and Ash, 2022; Ash and Hansen, 2023). By contrast, our set of seed words is not directly specified, but instead generated from words containing a certain set of keywords.

Formally, in the first step, we classify seniority levels based on keywords, assigning job titles containing specific keywords to five distinct levels. The five levels are similar to what Revelio classified on it own.

1. CMO level (excluding keywords like "assistant"):

    (a) 14 CMO-related job titles used in the literature (Koo and Lee, 2018): chief marketing officer, vice president of marketing, executive vice president of marketing, senior vice president of marketing, chief sales officer, chief revenue officer, vice president of sales, executive vice president of sales, senior vice president of sales, vice president of revenue, executive vice president of revenue, senior vice president of revenue, chief business development officer, vice president of business development, executive vice president of business development, senior vice president of business development,

chief market development officer, vice president of market development, executive vice president of market development, senior vice president of market development, chief commercial officer, vice president of commerce, executive vice president of commerce, senior vice president of commerce

2. Senior executive level (excluding keywords like "assistant"):
   (a) 8 executive acronyms: CEO, CPO, CMO, CBO, CFO, CTO, COO, CDO
   (b) both "chief" and "officer"
   (c) evp, svp, vp, president, director or associate director
3. Middle manager level: assistant director, manager, mgr
4. Junior level: representative, specialist, analyst, coordinator, consultant, artist, design
5. Entry level: support, clerk, intern, assistant

The first step involves a keyword-based method to "label" job titles by assigning them to corresponding seniority levels if they contain relevant keywords. In the second step, for job titles that do not contain any of these keywords, we assign them to the seniority level with the closest semantic meaning. Specifically, we use the RoBERTa language model to compute text embeddings, then calculate the cosine similarity between each job title's embedding and the centroids of the keyword-based embedding clusters. Each job title is assigned to the seniority level corresponding to the cluster with the highest similarity score. 1% of job titles are excluded because their embeddings are too distant from any keyword-based cluster centroids. Lastly, we combine CMO-level and senior-executive-level positions to define senior marketing executives, and group mid-, junior- and entry-level positions to define junior marketing employees.

B.2 Robustness to Alternative Classification

While the above approach builds directly on earlier work using embedding distance from "seed words" to classify categories (Hanley and Hoberg, 2019; Gennaro and Ash, 2022; Ash and Hansen, 2023), we also provide here the results from a simpler approach

that uses only keyword classification, presented in Table 1. Results are qualitatively very similar between this approach and our main specification.

A1: Seniority assigned solely based on keywords

	Brand buzz				Brand equity			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No. of senior executive exits	−0.030*** (0.0040)			−0.019*** (0.0047)	−0.011* (0.0042)			−0.0056 (0.0049)
No. of middle manager exits		−0.0080*** (0.0010)		−0.0053*** (0.0013)		−0.0037*** (0.0011)		−0.0042** (0.0014)
No. of junior employee exits			−0.0018*** (0.000 38)	−0.000 18 (0.000 44)			−0.000 089 (0.000 39)	0.000 89 (0.000 46)
Log no. of current employees	−0.29*** (0.072)	−0.28*** (0.072)	−0.31*** (0.072)	−0.26*** (0.072)	0.12 (0.075)	0.14 (0.076)	0.10 (0.075)	0.13 (0.076)
Observations	13 833	13 833	13 833	13 833	13 833	13 833	13 833	13 833
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.915	0.915	0.915	0.915	0.979	0.979	0.979	0.979

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Two-way fixed effect regressions for effects of marketing employee turnover at different seniority levels on brand buzz and brand equity. The seniority is defined using only keywords. Sample based on brand metric data from YouGov and job turnover data from Revelio. Turnover refers to the number of marketing employees at a certain seniority level who leave a given firm during a specific quarter. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; Specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are reported in parentheses.

B.3 Classification of Digital Marketing Employees

Finally, in our heterogeneity analysis, we also need to classify employees as digital marketing employees or not. We perform this classification based on job titles, using a similar two-step approach with LLM embeddings as we use for classifying seniority levels.

In the first step, we identify digital-related job titles using specific keywords. Job titles containing any of the following keywords are classified as digital positions: "adobe," "analytics," "androids," "animation," "cloud," "creator," "cyber," "data," "developer," "digital," "e-commerce," "facebook," "google," "graphic," "influencer," "instagram," "ios," "microsoft," "mobile," "online," "platform," "social media," "software," "twitter," "user interface," "visualization," "web," "youtube." These keyword-based job titles also serve as the focal group for the second step.

In the second step, we use the distilled version of the RoBERTa base LLM to compute text embeddings for all job titles. We calculate the centroid of the embeddings of

the job titles identified as digital in the above keyword-based classification step, and then compute the cosine similarity between each job title's embedding and this centroid. We then rank job titles by their similarity to the keyword-based digital group in descending order, and classify the top 10% of unassigned job titles with the highest similarity to the keyword-based centroid as digital. In total, 8.0% of marketing employee turnover is classified as digital employee turnover in this manner.

C Details on Merging the YouGov and Revelio Datasets

In this section, we present our full procedure for merging our two primary panels, YouGov and Revelio, into our final analysis panel.

First, we hand-code the publicly-traded corporate owners of the brands in the YouGov database by using a combination of public data sources, company websites and annual reports, as well as the associated CIK code for each of these publicly-traded corporate owners. Revelio Labs dataset contains a CIK code by merging the individual position data with the company reference files. We are able to match 401 publicly traded firms across YouGov and Revelio databases using the CIK codes.

Second, for the private corporate firms that do not have a CIK code, we use a direct string matching approach to match the remaining YouGov companies with Revelio companies. We find another 307 firms matched using company name or "child" company name or "parent" company name. Finally, for the remaining unmatched companies in the YouGov database, we are able to match 133 firms using fuzzy string matching, confirmed with manual checks.

The merged list of companies contains 814 firms, with 1389 brands, observed from June 3, 2007 to June 30, 2020. The unit of observation is brand-day. There are 4,646,429 observations over 4,777 days in the matched dataset.

However, a number of firms have a high degree of missing data in this dataset, and are not balanced across all periods. We restrict our analysis to the balanced panel, and as such, first restrict our sample period to range from November 13, 2012 on (so that all score measures are available from YouGov) and retain only the 477 firms with full data for the entire sample period. Summary statistics for this final sample are reported in the main text, in Table 1.

D Different Controls for Firm Size

In this section, we present analyses that use alternative specifications for controls. First, we present results with no control for firm size; second, we present results with a linear control for firm size. In both cases, results are qualitatively identical to our main specification.

A2: Effects of marketing employee turnover on brand buzz and brand equity (no firm size)

	Brand buzz				Brand equity			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No. of senior executive exits	−0.028*** (0.0036)			−0.016*** (0.0043)	−0.013*** (0.0038)			−0.0085 (0.0045)
No. of middle manager exits		−0.0084*** (0.000 96)		−0.0062*** (0.0012)		−0.0039*** (0.0010)		−0.0042** (0.0013)
No. of junior employee exits			−0.0017*** (0.000 36)	0.000 054 (0.000 42)			0.000 052 (0.000 38)	0.0011** (0.000 44)
Observations	14787	14787	14787	14787	14787	14787	14787	14787
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.912	0.912	0.912	0.912	0.978	0.978	0.978	0.978

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Two-way fixed effect regressions for effects of marketing employee turnover at different seniority levels on brand buzz and brand equity, without controlling for firm size. Sample based on brand metric data from YouGov and job turnover data from Revelio. Turnover refers to the number of marketing employees at a certain seniority level who leave a given firm during a specific quarter. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; Specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are reported in parentheses.

A3: Effects of marketing employee turnover on brand buzz and brand equity (number of employees as control)

	Brand buzz				Brand equity			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No. of senior	−0.022***			−0.014***	−0.010*			−0.0078
executive exits	(0.0038)			(0.0043)	(0.0040)			(0.0046)
No. of middle		−0.0066***		−0.0049***		−0.0032**		−0.0037**
manager exits		(0.0011)		(0.0013)		(0.0011)		(0.0014)
No. of junior			−0.0010**	0.000 099			0.000 38	0.0012**
employee exits			(0.000 37)	(0.000 42)			(0.000 39)	(0.000 44)
No. of current	−0.000 037***	−0.000 029***	−0.000 046***	−0.000 026**	−0.000 016*	−0.000 012	−0.000 025**	−0.000 011
employees	(0.000 007 6)	(0.000 008 1)	(0.000 007 5)	(0.000 008 1)	(0.000 008 1)	(0.000 008 5)	(0.000 007 9)	(0.000 008 6)
Observations	14787	14787	14787	14787	14787	14787	14787	14787
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.912	0.912	0.912	0.912	0.978	0.978	0.978	0.978

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

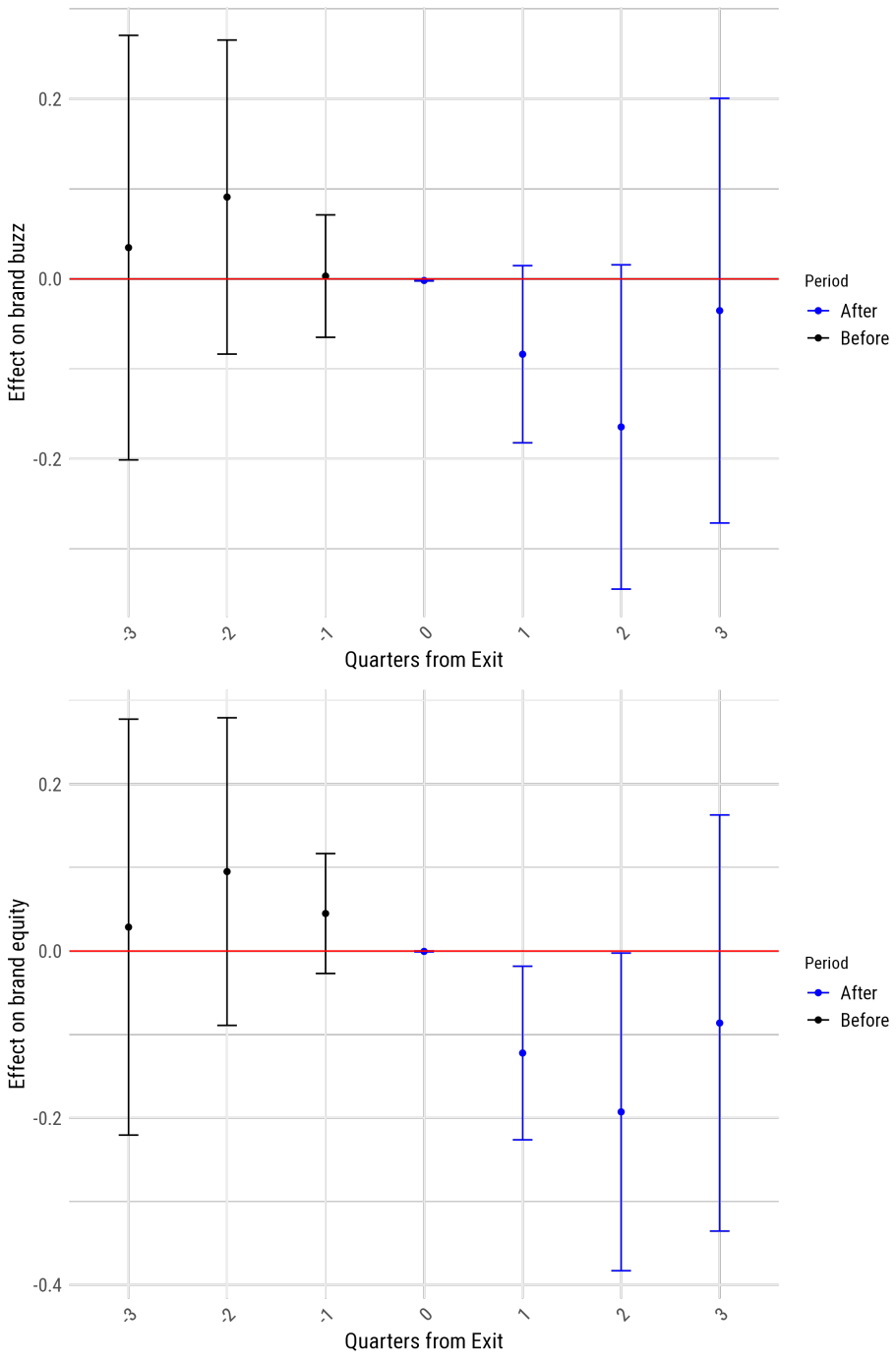
Note: Two-way fixed effect regressions for effects of marketing employee turnover at different seniority levels on brand buzz and brand equity, using directly the number of current employees as control for firm size. Sample based on brand metric data from YouGov and job turnover data from Revelio. Turnover refers to the number of marketing employees at a certain seniority level who leave a given firm during a specific quarter. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; Specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are reported in parentheses.

E "Event-Study"-like Specification

In this section, we present estimates from an "event-study"-like econometric specification, where we estimate coefficients both for the contemporaneous effect of turnover as well as three quarters of lagged turnover and three quarters of lead turnover, respectively, with turnover here aggregated across seniority levels. As described in the main body of the paper, we do not use this as our primary specification because exits are in general a continuous flow variable, similar to advertising expenditures in advertising analyses, and just as this type of differences-in-differences style estimation is not generally used in advertising analysis due to econometric concerns, we similarly don't rely on this as a baseline specification because we anticipate issues of multicollinearity, "bad controls", and difficulties of interpretation. For example, if turnover is auto-correlated, then including multiple lags and leads in the regression may induce multicollinearity and make it difficult to disentangle the independent effect of turnover at any given point. Moreover, controlling for lagged turnover may introduce mechanical bias by soaking up variation that is part of the causal effect of interest, particularly if the goal is to estimate the full dynamic impact of turnover rather than conditional effects net of past turnover.

Nonetheless, we estimate this specification as a robustness check, and to examine whether we find evidence of confounding pre-trends, which in this case would correspond to significant effects of future turnover. We find statistically null "future turnover" effects for both of our outcome metrics inspected. We then observe a significant negative effect in the quarter when the employee turnover occurs, as well as evidence of some prolonged negative impact in subsequent quarters. Results are presented in Figure 1 and Table 4 below. In all cases, we find null "pre-trend" estimates, indicating null effects of future turnover, and suggesting that confounding pre-trends are unlikely to be driving our observed results. For our longer-term brand metric, brand equity, we recover the most highly significant effects in the quarters after turnover, while our shorter-term brand metric, brand buzz, we recover the most highly significant contemporaneous effects, again aligning with intuition, although for the above-noted reasons we caution against over-interpreting the coefficient estimates from this specification. From this, we conclude that confounding pre-trends are highly

unlikely to be driving our observed contemporaneous and future-period results.



A1: Dynamic Treatment Effects of Aggregated Marketing Employee Turnover

A4: Dynamic treatment effects in "event-study" regressions

	Brand buzz	Brand equity
No. of exits *3 quarters before exit	0.035	0.029
	(0.12)	(0.13)
No. of exits *2 quarters before exit	0.091	0.095
	(0.089)	(0.094)
No. of exits *1 quarter before exit	0.0032	0.045
	(0.035)	(0.037)
No. of exits *quarter of exit	−0.0017***	−0.000 43
	(0.000 28)	(0.000 30)
No. of exits *1 quarter after exit	−0.084	−0.12*
	(0.050)	(0.053)
No. of exits *2 quarters after exit	−0.16	−0.19*
	(0.092)	(0.097)
No. of exits *3 quarters after exit	−0.035	−0.086
	(0.12)	(0.13)
Log no. of current employees	−0.32***	0.079
	(0.068)	(0.072)
Observations	14787	14787
Firm FE	Yes	Yes
Industry-time FE	Yes	Yes
R^2	0.912	0.978

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Dynamic treatment effects in "event-study" regressions for effects of total marketing employee turnover on brand buzz and brand equity with industry specific time fixed effect. Sample based on brand metric data from YouGov and job turnover data from Revelio.

F Peers-of-Peers Network Construction

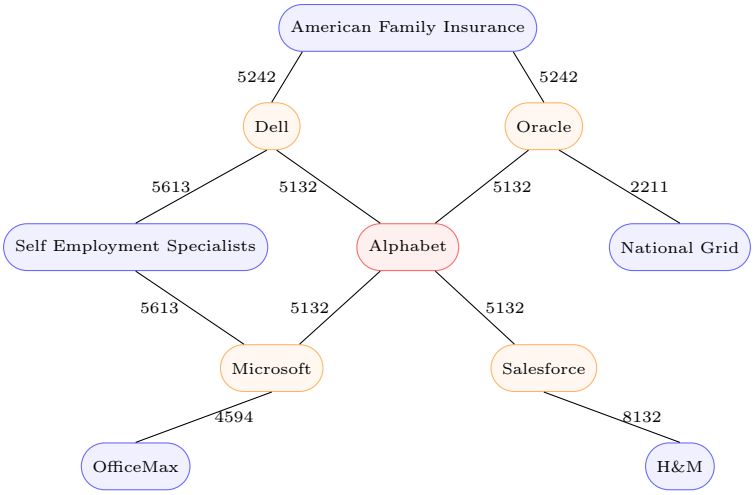
In this section, we describe the construction of our peer-of-peer instrument.

First, we acquire the NAICS codes and subsidiary/parent relationships from Revelio's ancillary data. We define a focal firm's peers (i.e., first-degree peers) as all the firms operating in the same firm category (defined by four-digit NAICS code) as the focal firm. We then gather the list of secondary firm categories that these peer firms are adjacent to based on industries that any peer's parent firm also operates in, and define the focal firm's peers-of-peers (i.e., second-degree peers) as firms that are operating in these secondary firm categories. We exclude peer firms from peer-of-peer firms. For each firm, we construct its peers and peers-of-peers. For example, Alphabet firm belongs to NAICS code 5132, defined as Software Publishers. Alphabet firm's peers include Dell, Microsoft, Oracle and Salesforce. The parent firm of Microsoft is Microsoft Corp., which operates in firm categories 4594 (Office Supplies, Stationery, and Gift Retailers) and 5613 (employment services) in addition to 5132. We therefore define all firms in firm categories 4594 (like OfficeMax) and 5613 (Self Employment Specialists) as peers-of-peers of Alphabet firm.

In Figure 2, we use Alphabet as a focal firm to demonstrate the process of constructing peers and peer-of-peer firms. (For demonstration purposes, we only include a subset of the firms and the firm categories in which each firm operates.)

This instrument operates under the standard logic of peer-of-peer instruments that have been applied previously throughout the literature (e.g. Shi, Grewal, and Sridhar, 2021). In our case, we expect that variation in marketing employee turnover among peers-of-peers captures broader macro-level trends in labor market conditions across a related set of firm categories. This approach helps isolate general labor market effects from firm-specific variations that may be contemporaneously confounded.[1] Our identifying assumptions are (1) that variation in marketing employee turnover at peer-of-peer firms, as a measure of average labor market movement for marketing employees in a broadly-defined group of related firm categories, is a proxy measure for labor market conditions that drive marketing employee turnover at the focal firm,

[1] This may be interpreted as a peer-group-level form of a "leave-one-out" IV design, where we are using the group-level average of a given covariate as an instrument for that covariate, leaving out the focal peer group (following Germann, Ebbes, and Grewal, 2015) to avoid endogeneity.



A2: Peers-of-peers network of Alphabet

Note: The four-digit codes adjacent to the links refer to the common first four-digit NAICS codes shared by two firms. Here are the industries associated with these NAICS codes. 5132: Software Publishers; 2211: Electric Power Generation, Transmission and Distribution; 4594: Office Supplies, Stationery, and Gift Retailers; 5242: Agencies, Brokerages, and Other Insurance Related Activities; 5613: employment services; 8132: Grantmaking and Giving Services.

and (2) that such variation does not affect the focal firm's brand buzz or brand equity except through said marketing employee turnover, in particular after controlling for brand fixed effects and industry-quarter fixed effects. (Note that turnover may be higher under better labor market conditions, as better job opportunities drive higher quit rates; given that we observe negative brand quality effects, we suggest that it is especially unlikely that superior labor market conditions for marketing executives drives same-quarter declines in brand perception measures, except through the effects of the employee turnover itself.)

G Brand-Quarterly Observations

In this section, we present analyses based on brand-quarterly observations, without first aggregating the brand portfolios within each firm. Because error terms are likely to be correlated within the same firm-quarter, we control for brand fixed effects and cluster standard errors at the firm-quarter level. This approach introduces a mismatch in the level of variation between the explanatory variable and the outcome variable. Specifically, the key coefficient of interest captures the average change in a single brand's buzz metric associated with a one-unit increase in marketing employee exits at the firm level. Nonetheless, we present this analysis to show that effects are highly similar regardless of whether one aggregates data to the firm level or not.

A5: Brand-quarterly regressions

	Brand buzz				Brand equity			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No. of senior executive exits	−0.017***			−0.0032	−0.011**			0.0015
	(0.0037)			(0.0039)	(0.0038)			(0.0042)
No. of middle manager exits		−0.0073***		−0.0070***		−0.0061***		−0.0081***
		(0.0012)		(0.0016)		(0.0012)		(0.0015)
No. of junior employee exits			−0.0015*	0.000 19			−0.000 12	0.0016**
			(0.000 60)	(0.000 63)			(0.000 54)	(0.000 56)
Log no. of current employees	−0.23**	−0.13	−0.24**	−0.13	0.24**	0.33***	0.20*	0.31***
	(0.076)	(0.070)	(0.075)	(0.070)	(0.090)	(0.087)	(0.090)	(0.086)
Observations	23715	23715	23715	23715	23715	23715	23715	23715
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.919	0.919	0.919	0.919	0.981	0.981	0.981	0.981

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Two-way fixed effect regressions for effects of marketing employee turnover at different seniority levels on brand buzz and brand equity using brand-quarterly observations. Sample based on brand metric data from YouGov and job turnover data from Revelio. Turnover refers to the number of marketing employees at a certain seniority level who leave a given firm during a specific quarter. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; Specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are clustered at firm-quarter level and reported in parentheses.

H Pre-Covid Periods

In this section, we present results from a restricted sample that excludes COVID-19-era observations. Results are presented in Table 6. We recover highly similar negative effects of marketing turnover on brand buzz and brand equity, although estimated effect sizes are slightly different.

A6: Effects of marketing employee turnover on brand buzz and equity (pre-COVID)

	Brand buzz				Brand equity			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No. of senior executive exits	−0.030*** (0.0040)			−0.019*** (0.0047)	−0.011* (0.0042)			−0.0056 (0.0049)
No. of middle manager exits		−0.0080*** (0.0010)		−0.0053*** (0.0013)		−0.0037*** (0.0011)		−0.0042** (0.0014)
No. of junior employee exits			−0.0018*** (0.000 38)	−0.000 18 (0.000 44)			−0.000 089 (0.000 39)	0.000 89 (0.000 46)
Log no. of current employees	−0.29*** (0.072)	−0.28*** (0.072)	−0.31*** (0.072)	−0.26*** (0.072)	0.12 (0.075)	0.14 (0.076)	0.10 (0.075)	0.13 (0.076)
Observations	13833	13833	13833	13833	13833	13833	13833	13833
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.915	0.915	0.915	0.915	0.979	0.979	0.979	0.979

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Note: Two-way fixed effect regressions for effects of marketing employee turnover at different seniority levels on brand buzz and brand equity with industry specific time fixed effect for just pre-Covid periods. Sample based on brand metric data from YouGov and job turnover data from Revelio. Turnover refers to the number of marketing employees at a certain seniority level who leave a given firm during a specific quarter. Specifications (1) and (5) only examine the effect of senior executive turnover; specifications (2) and (6) only examine the effect of mid-level manager turnover; specifications (3) and (7) only examine the effect of junior employee turnover; Specifications (4) and (8) use the stacked regression with turnover at all three levels. Standard errors are reported in parentheses.