

RESEARCH ARTICLE

Analysis of employee perception of employer brand: a comparative study across business cycles using structural topic modelling

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ABSTRACT

Employer branding is an important measure to attract prospective employees and to motivate, engage, and retain their current employees. Employer branding is instrumental for the employer to position the organisation in the minds of current and potential employees by using a combination of economic, psychological, and functional benefits. In the current research the authors implement a set of natural language processing techniques (structural topic modelling) on the employee reviews posted on Glassdoor.com (an online platform where the employees can post reviews about their current and previous employers). The study has thematically structured the 35,075 reviews from 8 Information Technology companies, spanning 5 years from 2015 to 2019. The study compares the employer branding parameters and has identified the prominent dimensions across the expansionary (2015–2017) and contractionary (2017–2019) phases of business cycles. A significant difference in topical proportions were found across the business cycles, suggesting different priorities for different dimensions of the employer brand during expansionary and contractionary phases. The findings would serve as guidance for HR managers to understand the trends in the employee perceptions in the context of changing macro-environment situations and accordingly recalibrate their existing strategies for talent attraction and retention.

ARTICLE HISTORY

Received 11 February 2022

Accepted 15 July 2022

KEYWORDS

Content analysis; employer brand; Indian IT companies; business cycles; text mining; structural topic modelling

1. Introduction

Employer brand is a valuable tool for organisations to create an identity that stands out from the competition (Saini, 2018). Employers can build an image as “a distinct and desirable employer” by effective employer branding (Van Hoye and Lievens (2007)). Thus, employer brand¹ is about giving the employer an identity, image beside distinctiveness, as adopted from brand management, to attract prospective employees and to engage, motivate and retain current employees (Srivastava & Bhatnagar, 2010). In existing literature, various authors identify strategies for directing the efforts of two target groups: the company’s current employees (insiders) and potential employees (outsiders). Van Hoye and Lievens (2007) studied efforts directed towards employees to gain “favorable word-of-mouth endorsements”. Saini (2018) has found that the endorsement of current and former employees is a significant indicator. A study by Dabirian et al. (2019) on the impact of an employer’s brand on employees of an IT company recommended that employer branding is one of the strategies to overcome the challenges of attracting and retaining IT employees. High turnover rates combined with the high demand for IT professionals make recruiting new IT staff a persistently major challenge for companies seeking to master ongoing technological progress (Joseph et al., 2015). At the entry-level

into an organisation, there is limited information about the organisation and applicants tend to rely extensively on the impression of the attractiveness of the organisation. In the digitally networked world, social media portals like Glassdoor.com provide applicant information about the attractiveness of the organisation. Branham (2001) posits that employer branding is instrumental for the employer to position the organisation in the minds of current and potential employees by using a combination of economic, psychological, and functional benefits.

The Indian IT Industry is a world leader and contributes an annual turnover of US\$154 bn and employs 19 million people (Nasscom, 2018). However, at the beginning of the year 2017, US President Donald Trump introduced measures against the outsourcing of jobs. Given the high exports of the Information Technology industry to the US, the measures introduced by Trump would lead to a negative impact, which has been studied by Bhayani (2017), by surveying industry participations and reported that the participants felt that Trump’s protectionist policy will harm the IT industry. In addition to the negative impact on the Information Technology industry due to steps taken by Trump, technological changes in terms of automation, digital transformation, etc. have amplified the negative impact on the Information Technology industry. Thus, the combined effect of

the measures taken by Trump and the impact due to technological changes have generated a negative impact. Several employees have lost their jobs as companies retrenched people and the current employees also face the threat of further job cuts.

The current research proposes to study the change in the perceptions of employees of the Indian IT industry, with shift in the market situation. Branham (2005) suggested steps that the organisations can take to achieve the employer of choice for the potential employees including pay, work-life balance, culture, and work climate. The extant literature thus recommends the steps an organisation takes to impact its employer brand, but it does not recommend any change in the steps to be taken, based on the market situation e.g., expansionary phase of the business cycles. To study this effect, employee reviews about their employers posted on “Glassdoor.com”, which is one of the world’s largest social media sites built on the foundation of increasing workplace transparency, are compiled. In the next step, we analyse the reviews for a period of five years from 2015 to 2019. In this paper, we direct our focus to identify different dimensions of the employer brand that matter to the employees of organisations in two different market situations in the Information Technology industry by employing structural topic modelling, (Roberts et al., 2014) a specific text mining technique to inductively identify topics from the text corpus.

The rest of the paper is organised as follows: Section 2 provides a literature review leading to the research proposition. Section 3 describes data collection and research methodology. Section 4 provides data analysis and interpretations. Section 5 presents conclusions and some implications for researchers and HR practitioners.

2. Literature review

A strong employer brand triggers favourable employee attitudes (Berthon et al., 2005). Firms are using employer branding to attract potential employees and assure current employees by managing their awareness and perceptions (Backhaus & Tikoo, 2004). The objective is to show the organisation as a “good place to work”. Madan and Madan (2019) have studied the criteria used by millennial talent while deciding to take jobs, using an exploratory survey methodology at Tier I Technological school in India, to arrive at the top five ratings to compensation, career progression, location, role, and fun at work. Schlager et al. (2011) have empirically studied the dimensions of the employer brand and examined their influence on the employee attitudes for the service industry. The authors have identified economic value, development value, social value, diversity value, and reputation value as the dimensions of the

employer brand. The authors have improved on the dimensions based on the work done by Berthon et al. (2005).

2.1. Key areas for analysing employer branding

The extant literature on employer branding has identified a list of factors that potential employees and current employees consider while evaluating the employer brand of a particular firm, these factors are, Corporate Citizenship, Autonomy, People Orientedness, Fun at work, Learning & Development, Career Growth, Reward Strategy and Financial Performance (Srivastava & Bhatnagar, 2010). These eight factors constitute the eight building blocks of the framework used for analysing the content on the Glassdoor.com website.

2.2. Employer work practices during contractive phase

To understand the contractionary phase of the IT industry studied in this paper, the extant literature has been explored to find out the changes in the practices due to an economic downturn. Pruneda (2015) has studied the changes in terms of the high-performance work practices in the Spanish private sector, after 3 years of the economic and financial crisis. The authors have identified changes in the practices as identified in a survey of wage works in the Spanish private sector, showing that job security and skills utilisation have high usage as compared to contingent remuneration and excessive training. Further, the national crisis in Brazil has been studied in terms of two behaviours of the employees of the IT industry in terms of changing jobs to move to another organisation (turnover) or changing the profession (turnaway) based on the antecedents of professional self-efficacy, job satisfaction, and job insecurity.

The extant literature does not study the change in the practices comprehensively as perceived by the potential/current employees in an expansionary and contractionary phase, implying a gap in the literature. The current paper proposes to study the changes in perceptions as differing in the two phases of the IT industry, namely, the expansionary phase, which is 2 years from Jan 2015 to Dec 2016, and the contractionary phase, which is 3 years from Jan 2017 to Dec 2019. The cut-off between the two periods is based on the US introducing measures against outsourcing of jobs in Jan 2017 and other economic indicators like the exports value of IT services from India which declined from 17.3% to 8.2% over previous years during the 2016 and 2017 respectively (Please refer Annexure 4 for detailed statistics for Export Values and Employment indicators of IT-BPM industry during the period 2015–2019)

2.3. Research question

Employer Brand perception has been studied in various contexts such as industry perspective in Healthcare (Polsa et al., 2010), IT-BPM (Deepa & Baral, 2019), in retention and turnover groups of employees (Lee & Kang, 2017); country-specific such as China (Jiang & Iles, 2011), India (Kashive et al., 2020; Sharma & Prasad, 2018); and multicultural context (Eger et al., 2019) and very recent one on Employer brand equity and its impact on the application intent of the prospective employees (Dalvi, 2021). Several of these studies are done using semi-structured interviews (Chhabra & Sharma, 2014), group interviews (Polsa et al., 2010), and using survey questionnaires (Dalvi, 2021; Gungordu et al., 2014; Tanwar & Kumar, 2019). However, employer brand perception research using unsolicited field data (social media data) from the employees is sparse (e.g., Dabirian et al., 2017; Lee & Kang, 2017).

In our study, we attempt to explore a unique context of the impact of the business cycle on the employer brand perception during the growth phase and decline phase of the IT industry in an emerging economy like India.

The research questions of this paper are as follows:

- RQ1: Explore how the employer brand perceptions of employees of the Indian IT industry have changed in the expansive and contractive business cycles?
- RQ2: Identify the dimensions of the employer brand, as perceived by the employees, which underwent significant changes across the expansive and contractive business cycles.

3. Data collection & preparation

3.1. Data source

“Glassdoor.com” is an online platform where the employees can post reviews about their current and previous employers. Glassdoor enables, employees, to voluntarily and anonymously rate and review their companies, salaries, interview experience, senior management, and corporate benefits. The Glassdoor reviews of a company include comments as well as employees’ overall rating of a firm on a five-star scale. Also, optional star ratings can be given for Career Opportunities, Compensation and Benefits, Work/Life Balance, Senior Management, and Cultures and Values. Employees enter separate free-text responses for Pros (“Share some of the best reasons to work at . . .”) and Cons (“Share some of the downsides of working at . . .”). We decided to use Glassdoor as the data source for this study, due to its comprehensive employer evaluation and popularity as a social media platform.

3.1.1. Volume and representativeness

Data collection needs to ensure a sufficiently large size of the text corpus because topic modelling algorithms require a certain volume of text to produce accurate and meaningful results. We extracted 35075 reviews of the employees from eight major Indian IT companies based on the size of the employee strength as reported by Data Quest Magazine October 2017, spanning across the period 2015 to 2019 to ensure enough coverage of reviews from the expansive and contractive phases timeframe. Dataset used in current study is available on reasonable request from corresponding author.

3.1.2. Metadata

Apart from discovering the topical structure of a text corpus, we were interested in examining the relation of latent topics with other variables like the employee status (current or former), recommendation, work type (part-time or full-time), pros and cons. Figure 1 shows the sample review from Glassdoor.com and the corresponding fields extracted from the review for analysis. These reviews formed the part of the corpus used for textual analysis using structural topic modelling.

3.1.3. Data exploration

The exploratory data analysis of the data collected across various aspects is carried out and results are shown below in Figure 2.

- (a) By Period
- (b) By Type of Employment:

Most of the reviews are from full-time employees namely 34,981 nos. and only 94 nos. are from part-time employees

3.2. Data preparation

After exploring the overall data set using descriptive statistics and visualisations, we first cleaned the data by eliminating duplicate reviews. To execute the document-level natural language processing steps, we used the statistical computing programming language R and STM (structural topic models) package. Using the text Processor function, we tokenised the documents into single words (unigrams) and removed standard English language stop words, a small number of custom stop words (e.g., company names – HCL, etc), words with fewer than three letters, numbers, and punctuation. Steps involved in the data cleansing and preparation are listed in Table 1 below:

3.3. Research methodology

During the last decade, management researchers have increasingly used topic modelling to analyse textual data. Borrowed from computer science, this method

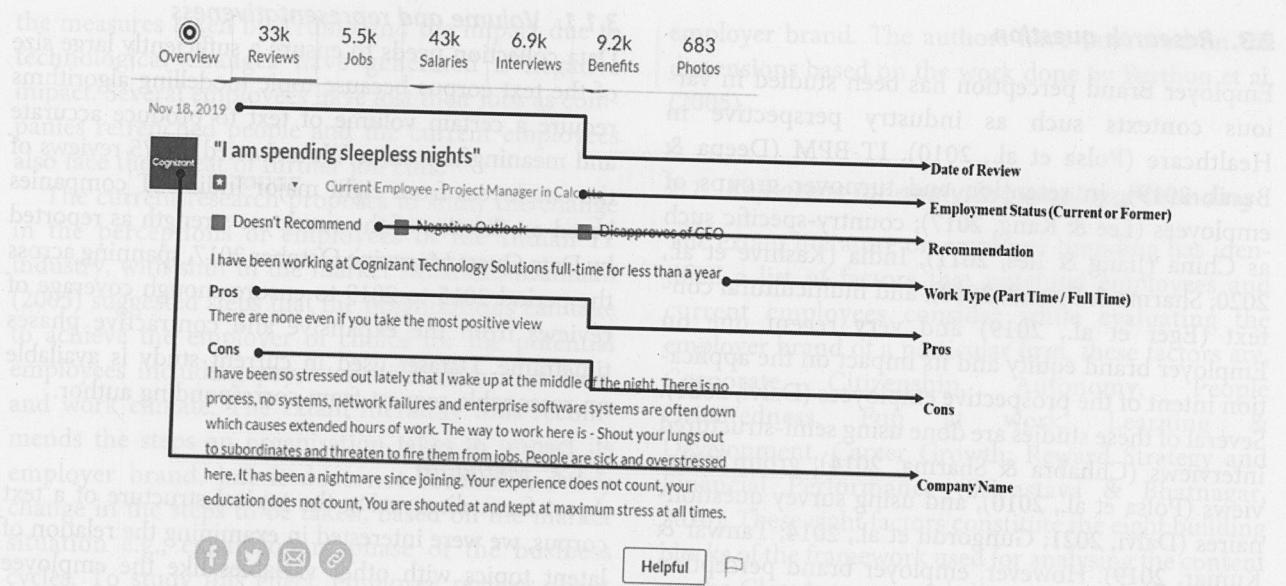


Figure 1. Sample review and list of data fields extracted.

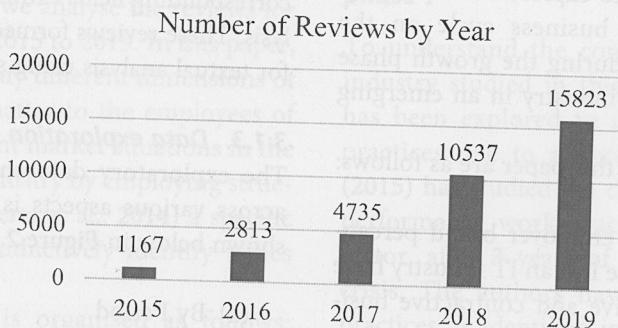


Figure 2. Number of reviews by year.

Table 1. Data preparation steps.

Sr. No	Steps	Specifications
1	Transforming document format	Converted the raw text available in the excel format in to the required corpus file in R data format
2	Constructing Metadata Attributes	Metadata related to each document: date of review, employee status (current or former), recommendation, work type (part-time or full-time), pros and cons, the company name was recorded and retained in the corpus file for examining variable relation
3	Removing Duplicates	Sanity checks on the corpus to eliminate redundant records using R
4	Tokenisation	Splitting documents into sentences and sentences into words using the function "textProcessor" in R
5	Stop word removal	Removing standard stop words (e.g., the, and), lists of which are available in all major text mining tools, reduces noise in the topics
6	Normalization	Turning capital letters into lower case (e.g., BEST to best)
7	Lemmatizing/ stemming	Reducing a word to its dictionary form or to its stem (e.g., climbing, climbed to "climb" and running, ran to "run")

involves using algorithms to analyse a corpus (a set of textual documents) to generate a representation of the latent topics discussed therein (Schmiedel et al., 2019)

to reveal phenomenon-based constructs and grounded conceptual relationships in textual data. In a recent analysis of topic modelling conducted by (Hannigan et al., 2019), the authors identified five broader areas of applying Topic Modelling to Management Scholarship, namely, detecting novelty and emergence (e.g., Measuring topics to understand innovation, Toubia & Netzer, 2017), developing inductive classification systems (e.g., Inducing underlying meanings associated with cultural events,), understanding online audiences and markets (Online brand recognition and preference, Netzer et al., 2012), analysing frames and social movements (Understanding how frames influence political processes, Fligstein et al., 2017), and understanding cultural dynamics (Understanding how cultural meanings change over time, DiMaggio et al., 2013).

Structural Topic Models (STM)

Generally, machine learning uses computational algorithms to discover hidden patterns in the data. The use of machine learning for content analysis, also known as probabilistic topic modelling (Blei, 2012), enables automatic discovery of topics and their relative salience from large texts, with the

assumption that one document contains multiple topics. This algorithm-based approach assists topic discovery without the researchers' subjectivity, which is a major concern in traditional content analysis (Campos-García & Zúñiga-Vicente, 2018). The current research adopts Topic Modelling as a Strategy of Inquiry in Organizational Research.

With the deluge of user-generated content available on the Internet, more and more social science researchers started to make use of text mining techniques (Janasik et al., 2009). The term text mining refers to computational methods for extracting potentially useful knowledge from large amounts of text data (Fan et al., 2006). As a specific form of text mining, topic modelling is a methodological approach to derive recurring themes from text corpora. For researchers, topic modelling represents a novel tool for analysing large collections of qualitative data in a scalable and reproducible way.

Just as Latent Dirichlet Allocation (LDA; Blei et al., 2003) disrupted latent semantic indexing (LSI; Deerwester et al., 1990), scholars are attempting to modify LDA by improving fit algorithms and making it more structured and systematic. Structural Topic modelling (STM) extends LDA by incorporating metadata about documents, such as who wrote each text and when or where they were written. This information can be re-applied to the topic estimation procedure and help improve model fit. In doing so, STM enables researchers to identify relationships not just between topics and documents but also between the producers of documents and the texts and topics. It can be used in a linear regression framework to analyse specific metadata (as covariates) to identify statistically significant relationships to each topic. It can also be used in mixed methods approaches such as with critical discourse analysis to tie textual data analysed using topic models with richer qualitative analysis (Vaara et al., 2019).

STM has been employed in management research for analysing textual data of various formats including textual abstracts of academic journals (e.g., Kuhn, 2018), newspaper articles (Chandelier et al., 2018), Twitter feeds (Mishler et al., 2015), online customer reviews of the electronic products (Jacobs et al., 2016), online reviews of the tourists on hotel portals (Korfiatis et al., 2019). We recognise the novelty and methodological advances provided by the STM technique in content analysis on a variety of domains and the nature of textual data analysed to advance the management research.

In this study, we apply STM as a technique to explore the online reviews posted by the employees of Indian IT companies on the social platform "Glassdoor.com" to understand the employee perception of the employer brand in expansionary and contractionary phases during the period 2015–2019.

The research is based on the analysis and interpretation of topics from employee reviews in Glassdoor.com by applying structural topic modelling. Figure 3 provides a brief overview of the steps involved in the structural topic modelling of the corpus.

3.4. Results of Structural topic modelling (STM) analysis

3.4.1. Selecting the number of topics

A natural first problem when applying STM involves identifying the number of topics. There is no single correct way to address this issue, but one possibility involves studying the trade-off between semantic coherence and exclusivity. The semantic coherence is a measure of how significantly closer the words in the topic are with each other in terms of their meaning, while "exclusivity" measures how each group exclusively determines the themes of the corpus. Semantic coherence and exclusivity are both a function of the number of topics that a topic model contains. Hence, these metrics can be used to guide the selection of an "optimal" number of topics.

Figure 4 shows the values of "semantic coherence" and "exclusivity" when applying STM to select between 30 and 100 topics on the data corpus. Each data point is based on a distinct analysis and a distinct set of topics. The label shows how many topics were found. There is no clear correct number of topics in the data. A few observations do stand out, including the cases where 36, 40, 69, 52 and 70 topics were found significant. Arguably, the biggest outlier is the case where 70 topics were found, which fares well on both parameters – exclusivity of topic and semantic coherence between topics. Based on the inferences from Figure 4, we have chosen the number of topics to be 70 and modelled our subsequent analysis based on it.

3.4.2. Identified topics and intuitive meanings

After applying STM, specific words are linked to specific topics. Explicit definitions, labels, or intuitive meanings of topics are not automatically generated. It is up to the researcher of the analysis to determine what the topics represent based on the frequency with which different words are used within the topics. This requires considering each topic in turn and examining a small collection of words that are associated with the topic. Table 2 shows the average probability estimates of the 70 topics in the corpus.

3.4.3. Impact of covariates on topic prominence

Once the optimum number of topics have been derived using STM, in the next step, we have estimated the proportion of all 70 topics in the corpus individually as a function of the time measure that has two categories, namely, expansionary, and contractionary phases. This is done using an R package developed by

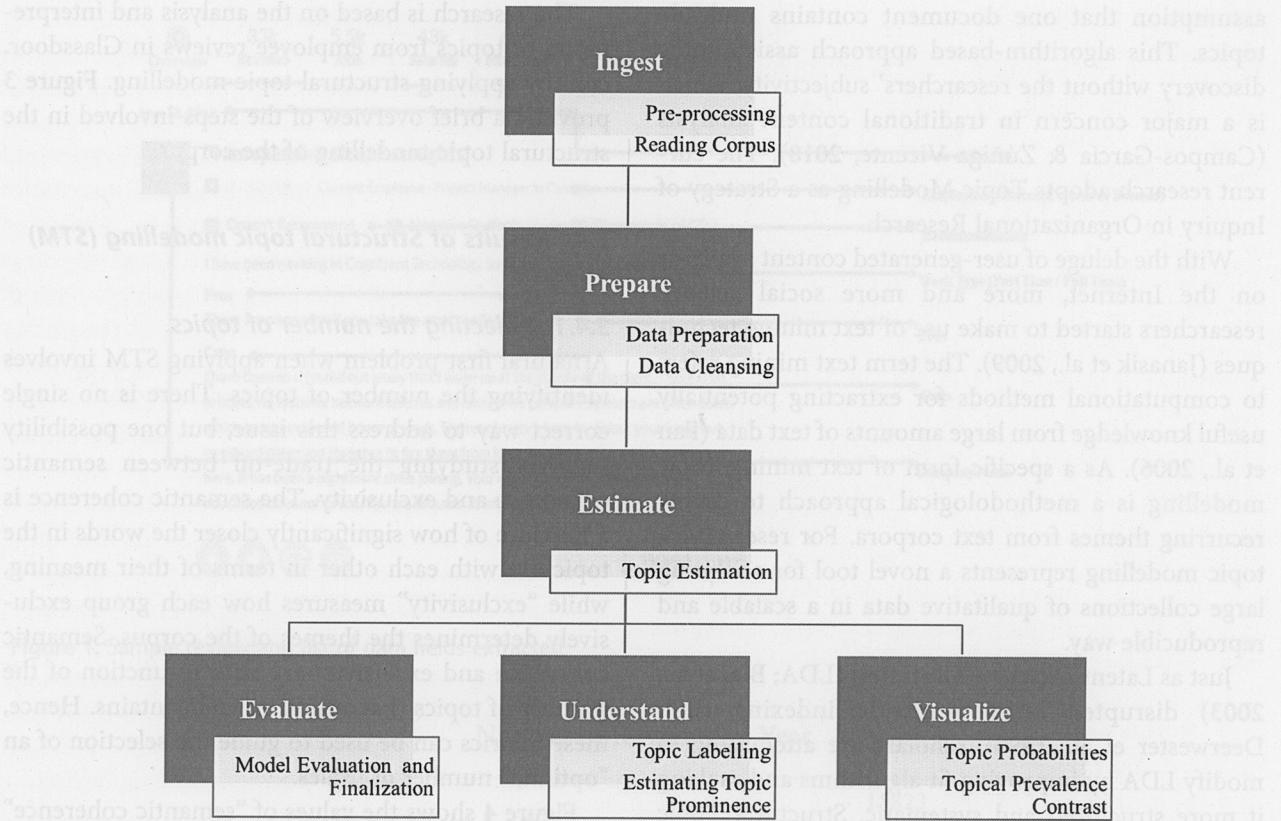


Figure 3. Brief overview of the steps involved in STM.

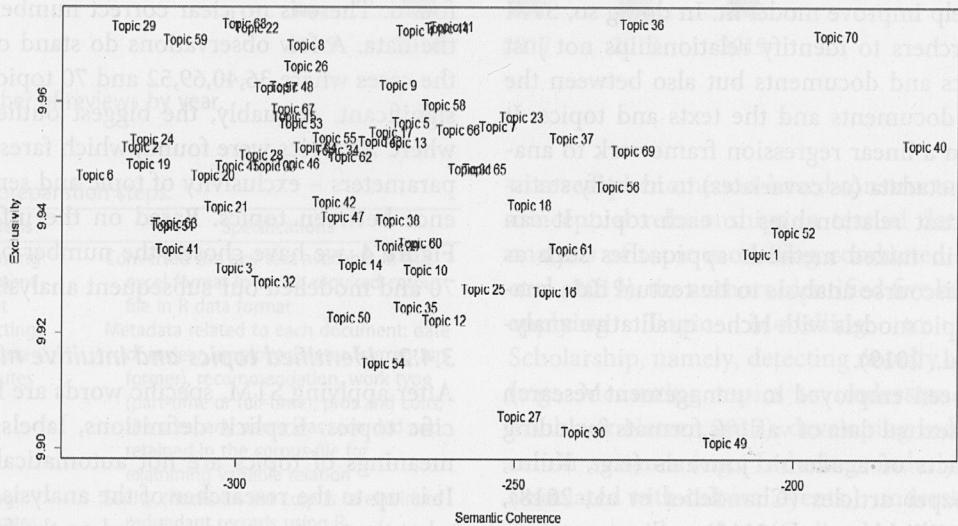
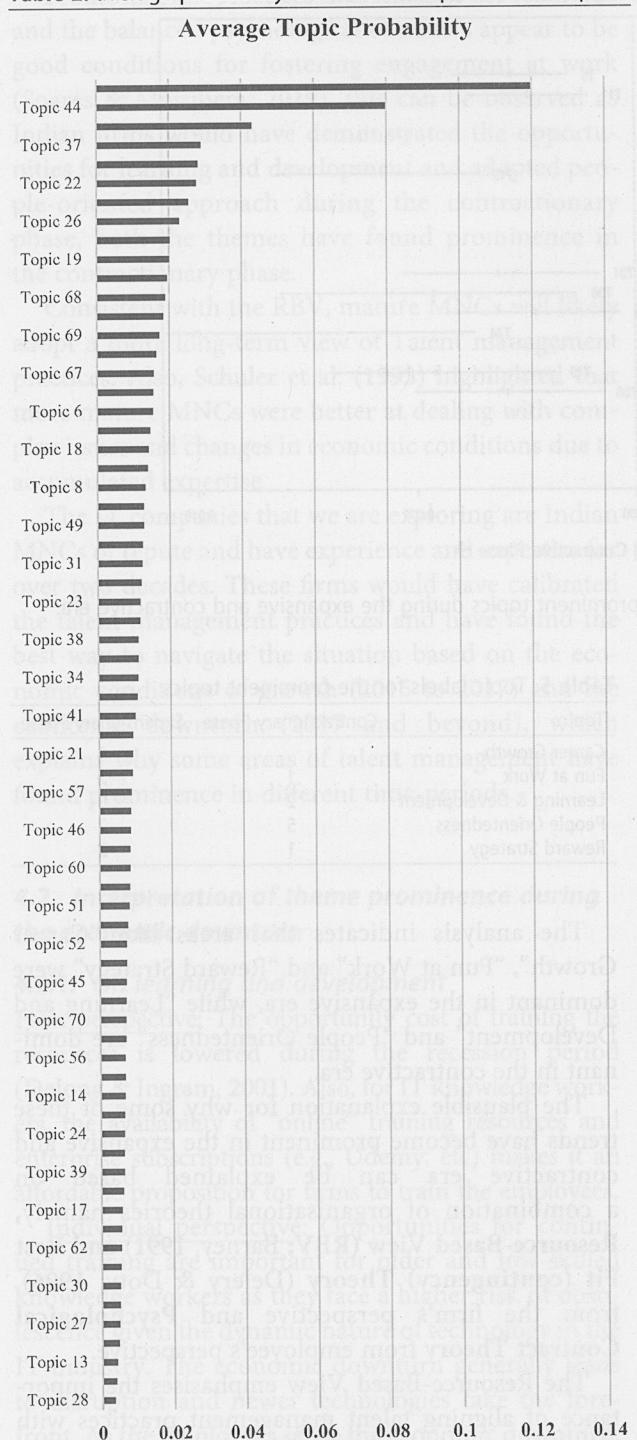


Figure 4. Semantic coherence and exclusivity.

Roberts et al. (2014). Essentially the function estimateEffect() [in “stm” R package] identifies the topics which are statistically significant for various covariates (metadata) of the data corpus. In this research, as mentioned previously, we progressed with the topic prominence identification by understanding the impact of the factor of time measure as expansionary and contractionary phases. We fit an estimation model to the data based on the following generic model:

$$\text{Prevalence}_{ij} \sim \beta_{0j} + \beta_{1j} * \text{Era}(\text{Expansive and Contractive}) \quad (1)$$

The sample regression output provided by the effect function () for Topic 1, which provides the significance in terms of p-values, is as shown below. The detailed output for prominence analysis using linear regression model as given by formula (1), with the output for all topics is tabulated and provided in the Annexure 1.

Table 2. average probability estimates of topics in the corpus.

Topic 1: Sample output of R for effect function () providing covariate significance

Coefficients:

Estimate Std. Error t value Pr(>|t|)
 (Intercept) 0.0086062 0.0008588 10.021 < 2e-16 ***
 Era_FlagExpansionary -0.0013812
 0.0011050 - 1.250 0.211

Signif. codes: 0 “***” 0.001 “**” 0.01 “*” 0.05 “.” 0.1 “ ” 1

Table 3. 21 prominent topics that emerged from the corpus.

Topic 3:	Topic 6:	Topic 11:	Topic 12:	Topic 13:	Topic 18:	Topic 19:
Topic 23:	Topic 24:	Topic 25:	Topic 26:	Topic 31:	Topic 36:	Topic 40:
Topic 44:	Topic 46:	Topic 49:	Topic 56:	Topic 57:	Topic 63:	Topic 64:

We analysed the significance of the expansive and contractive growth era on the topics and identified that the following 21 topics numbers were identified to be statistically significant (i.e., prominent) during the expansive and contractive growth era. The prominent topics are listed in Table 3 .

When the covariate of interest is binary, or users are interested in particular contrast, by selecting a hyper-parameter (method = “difference”) we can plot the change in topic proportion shifting from one specific value to another. In our case, the interest and focus of the study are to find the contrast between the topics for the expansive and contractive era (covariates). We then analyse the above statistically significant 21 topics against the “expansive” and “contractive” era using the inbuilt utility of the R:stm() package. Figure 5 shows the distribution of topics in the expansive and contractive eras. For example, Topic 44 on the extreme right indicates that the topic was largely associated with the “contractive” era while Topic T26 was associated with the expansive era. Some topics T3, T24, T25, closer to the middle but still leaning towards the contractive era.

3.4.4. Assigning topic labels

For the interpretation and labelling of topics, we used the label Topics function of the STM package, which produces four different weightings of the most important words per topic (i.e., highest probability, FREX, lift, and score). The highest probability weighting uses the raw per-topic word probabilities, FREX uses a weighted mean of overall word frequency and the exclusivity of words to a topic, lift uses the frequency of a term in other topics to emphasise words that are specific to a topic, and similarly, the score uses the log frequency of terms in other topics to identify words that are specific to a topic (Roberts et al., 2014). Three researchers coded each of the 21 topics independently, examining the word rankings for each topic and examining reviews highly associated with each topic. For example, the score words that represent Topic 3 are better, environment, stabl, balance, rest, appreci, offici, flexibili (note that the terms are stemmed), and reviews are closely associated with topic how the working environment in the organisation would be like for the employees and hence we labelled the topic ‘Fun at Work’.

Annexure 2 shows additional examples of topics, highly associated words, extracts from the most probable reviews, and the topic labels generated by three researchers independently.

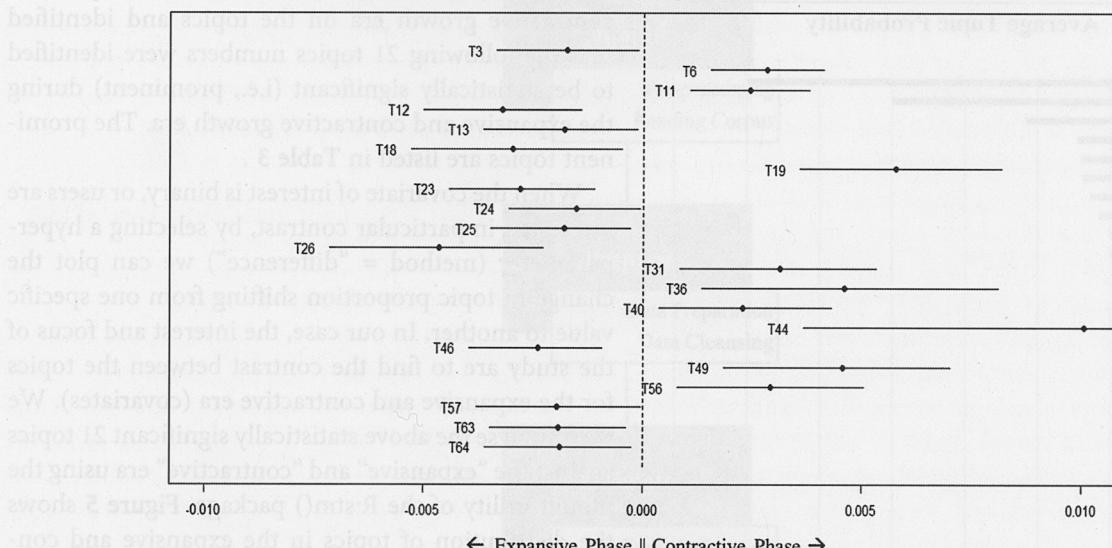


Figure 5. Graphical display of topical prevalence contrast of 21 prominent topics during the expansive and contractive era.

All three researchers labelled the topics independently based on the eight-building block of employer branding described in section 2.1. The topic labelling exercise revealed reasonable inter-rater reliability (see, Table 4 below),

In cases where the label names differed between researchers, the researchers discussed their findings until they reached a consensus about a label. The corresponding labels for all the prominent topics identified are, as listed in Annexure 3.

4. Analysis of results

4.1. Engagement with the existing literature

On exploration of the distribution of 21 topics into 5 thematic categories (ref Table 4) and their prominence expansive and contractive era (ref Figure 5), we summarise the findings below in Table 5. The numbers in the cells represent the frequencies of the topic labels shown in the rows. For example, the topic labelled as “People Orientedness” occurred 5 times during contractionary period. We can derive this by noting down all the topics during contractionary phase from Figure 5 (e.g., T6, T11, T19 etc.), and mapping them to topic labels using Annexure 3 and then counting the frequencies of the labels.

Table 5. Topic labels for the prominent topics.

Topics	Contractionary Phase	Expansionary Phase
Career Growth	6	1
Fun at Work	1	2
Learning & Development	2	1
People Orientedness	5	2
Reward Strategy	1	2

The analysis indicates that areas like “Career Growth”, “Fun at Work” and “Reward Strategy” were dominant in the expansive era, while “Learning and Development” and “People Orientedness” are dominant in the contractive era.

The plausible explanation for why some of these trends have become prominent in the expansive and contractive era can be explained based on a combination of organisational theories namely, **Resource-Based View (RBV; Barney, 1991)** and **Best Fit (contingency) Theory** (Delery & Doty, 1996), from the firm’s perspective and **Psychological Contract Theory** from employee’s perspective.

The Resource-Based View emphasises the importance of aligning talent management practices with specific organisation competencies to achieve and sustain competitive advantage (Barney, 1991). The best-fit (or contingency) perspective focuses on the need to match talent management to prevailing conditions in a specific sector or organisation and rejects the notion of one best way of doing things in all contexts (Delery & Doty, 1996). Psychological contract is culturally determined and subjective (Rousseau, 2011), rather than legal in nature. It is defined as an individual’s belief in mutual obligations between that person and another party, such as an employer (Rousseau, 1989). It is unique in nature, culturally determined (Rousseau, 2011) and is based on the patterns of expectation and obligations of each employee.

Table 4. Inter-rater agreement matrix.

Rater agreement	Number of Topics
All 3 rater's label matched	14
Two of 3 rater's label matched	4
None of rater label matched	3
Total	21

Promoting HR practices that enhance the relational and the balanced psychological contracts appear to be good conditions for fostering engagement at work (Soares & Mosquera, 2019), this can be observed as Indian firms would have demonstrated the opportunities for learning and development and adopted people-oriented approach during the contractionary phase, both the themes have found prominence in the contractionary phase.

Consistent with the RBV, mature MNCs will likely adopt a more long-term view of Talent management practices. Also, Schuler et al. (1993) highlighted that more mature MNCs were better at dealing with complex issues and changes in economic conditions due to accumulated expertise.

The IT companies that we are exploring are Indian MNCs of repute and have experience and expertise for over two decades. These firms would have calibrated the talent management practices and have found the best way to navigate the situation based on the economic conditions of growth (2015 to 2017) and the economic downturn (2017 and beyond), which explains why some areas of talent management have found prominence in different time-periods.

4.2. Interpretation of theme prominence during the economic downturn

4.2.1. On learning and development

Firm perspective: The opportunity cost of training the resources is lowered during the recession period (DeJong & Ingram, 2001). Also, for IT knowledge workers, the availability of “online” training resources and enterprise subscriptions (e.g., Udemy, etc) makes it an affordable proposition for firms to train the employees.

Individual perspective: Opportunities for continued training are important for older and low-skilled knowledge workers as they face a higher risk of obsolescence given the dynamic nature of technology in the IT industry. The economic downturn generally leads to disruption and newer technologies take the forefront. As the employees sense the economic downturn, they are self-motivated to learn a new skill set to stay relevant. Also, the opportunities to learn newer skills are relatively inexpensive (almost free) due to the advent of online training platforms.

4.2.2. On people orientedness

The studies measuring Organizational Cultures have asserted that all service sector organisations will be more people-oriented than outcome-oriented (Chatman & Jehn, 1994; Hofstede et al., 1990). Indian estimated scores for Hofstede’s 6D model for cultural assessment (2010) of six dimensions, suggest that India is high on the two dimensions namely, “collectivism” and “long term orientation”.

The findings from the Global Leadership and Organizational Behaviour Effectiveness (GLOBE) research programme are used to provide a sound basis for conceptualising worldwide leadership differences. The “GLOBE” study (House et al., 2004), on culture, leadership, and organisations, indicates that the Indian organisation leadership scores higher than the global average on the dimension of Humane-Orientation (i.e., the degree to which leaders are supportive and considerate but also compassionate and show generosity) where it ranks 9th in the world. On the dimension of “Future-Orientation” (i.e., the extent to which individuals engage in future-oriented behaviours such as delaying gratification, planning, and investing in the future) ranks 15 in the world (Chhokar et al., 2007 p. 993).

In light of trends towards restructuring and downsizing, psychological contracts are playing an increasingly important role in contemporary employment relationships. Despite the economic benefits, employer image may be significantly affected and damaged by disruptive events like downsizing (Campos-García & Zúñiga-Vicente, 2018).

In our context, we believe that the eight Indian IT firms have a long-standing reputation of culturally endorsed implicit leadership. Also, as the business decisions have moral implications and hence accountability on the firms, the Indian IT firms are likely to demonstrate a people-oriented and future-orientation approach during the contractionary period as a signal to demonstrate the morality and ethics of the firm.

4.2.3. Interpretation of theme prominence during economic growth

Organisations are said to serve as a part of one’s social identity, or self-concept as it relates to the significance of organisational membership (Ashforth and Mael, 1989). Lievens and Highhouse (2003) noted that organisational attraction is determined by more than simply instrumental attributes (the perceived quality of its pay, benefits, and opportunities for promotion) of the job, but also by more symbolic meanings associated with being a part of a particular firm (e.g., Apple as innovative; TCS as stable; etc). Ashforth and Mael (1989) noted that people identify with organisations to enhance self-esteem. On the other hand, it is tacitly understood by the firm managers that a positive and distinctive organisational identity attracts the recognition, support, and loyalty of not only organisational members but other key constituents (e.g., shareholders, customers, job seekers; Ashforth& Mael, 1989).

4.2.4. On career growth

Firm perspective: Career growth is negatively related to turnover-intention (Weng & McElroy, 2012), which gives an edge to the firm to retain talent in the highly

competitive environment where talent acquisition is a real challenge. So, during the economic upside, it becomes imperative to provide growth opportunities to employees to retain them. The avenues for growth not only encourage internal employees but also attract newer talent to the firm

4.2.5. On fun at work

Fun at work is important for employee morale and productivity (Workforce, 2000). The “Fun at Work” aspect provides the necessary employee engagement and creates an environment of livelihood and belongingness among the employees of the firm. The fun work culture leads to subjective well-being (SWB) which in turn acts as a contributor to a positive organisational behaviour (Luthans, 2002). In the growth era, it is important to maintain the work-life balance, and fun at work opportunities serve the purpose.

4.2.6. On reward strategy

Social Exchange Theory (SET) provides a theoretical foundation to explain why employees choose to become engaged in their work and organisation. When individuals receive economic and socioemotional resources from their organisation, they feel obliged to respond in kind and repay the organisation (Croppanzano & Mitchell, 2005). So, it serves as a win-win strategy for the employer and employees.

5. Conclusion and implications

“Glassdoor.com” is a useful resource for Human Resource Management researchers interested in employer branding. Techniques developed in the IS field of machine learning can be applied to this database to obtain useful insights. Structural Topic Modelling allows the researcher to take full advantage of a large amount of free text in form of comments provided by the employees and also relate it with important metadata (e.g., employment status, location, work type, recommendation, experience level, etc.).

The current research that analyses the employee reviews provides five distinct themes that the employee's value in the firm namely, “Career Growth”, “Fun at Work”, “Reward Strategy”, “Learning and Development”, and “People Orientedness”. In providing these insights, this paper makes several contributions, both theoretical and managerial, which are discussed below.

5.1. Contribution to applications, techniques, and technologies for business intelligence

The research advances the evidence-based decision-making in employer branding for the organisations. By employing the advance and sophisticated text

mining techniques like Structural Topic Modelling for comparing the change of perception over two time periods provides a foundational reference for other researchers to apply the techniques in different contexts other than in the domain of Human Resources.

5.2. Contribution to human resource management literature

This paper advances our understanding of the different priorities with which the employees perceive different dimensions of the employer brand under different business cycles. To the best of the authors' knowledge, it's one of the first attempts to explore the employer brand perception in the context of macro-environment factors -expansionary and contractionary phases of the business cycle, by applying structural topic modelling technique to employee review text

5.2.1. Unique context

Employer Brand perception has been studied in various contexts: industry-specific (Healthcare e.g., Polsa et al., 2010; IT-BPM e.g., Deepa & Baral, 2019); country-specific (China e.g., Jiang & Iles, 2011; India e.g., Sharma & Prasad, 2018); multicultural context (e.g., Eger et al., 2019). In our study, we have explored a unique context of analysing the **impact of the business cycle on the employer brand perception** during the expansive and contractive phase on the IT industry of emerging economy – India.

5.2.2. Empirical investigation of employer brand perception using longitudinal study

Several employer brand perception studies are done using semi-structured interviews (e.g., Chhabra & Sharma, 2014), group interviews (Polsa et al., 2010), and using survey questionnaires (e.g., Gungordu et al., 2014; Tanwar & Kumar, 2019). However, employer brand perception research using unsolicited field data (social media data) from the employees is sparse (Dabirian et al., 2017).

To the best of the authors' knowledge, this study is the first to propose and empirically investigate the effect of contractive on employee perception of employer brand analysing employee reviews from Glassdoor.com for 5 years. The study provides evidence that different aspects emerge as dominant factors in building the perception of an employer brand by the employees during the recent expansionary and contractionary period 2015–2019.

5.2.3. Informs and advances existing literature

5.2.3.1. During contractionary period. Learning and Development: Investment in Learning and Development during the contractionary period is beneficial for both the firm and the employees as the

opportunity cost of training the resources is lowered during the contractionary period (DeJong & Ingram, 2001).

People Orientedness: Although it is economically beneficial for employers to retrench employees during the contractionary period, the emergence of the “People Orientedness” approach by the firms appears counterintuitive. However, Indian Leadership Culture which ranks 9th on Humane-Orientation and 15th on “Future-Orientation” on the “GLOBE” study (House et al., 2004), on culture, leadership, and organisations provide the explanation for the firms adopting a people-orientedness approach as a signal to demonstrate the morality and ethics of the firm.

5.3. During expansionary period

- **Career Growth:** Society for Human Resource Management (SHRM) highlights blocked career as one of the antecedents of voluntary employee turnover (Allen, 2008). Also, talent acquisition in a highly competitive environment is a real challenge. Hence, providing career growth opportunities then becomes imperative for the firms, especially during the growth period, as a part of the talent retention strategy.
- **Fun at Work:** The fun work culture leads to subjective well-being (SWB) which in turn acts as a contributor to a positive organisational behaviour (Luthans, 2002) leading to a more engaged workforce. Although an important aspect of work culture, it is intuitive that during the growth period there would be more emphasis on the building of “fun at work” environment and the employees would perceive it the same.
- **Reward Strategy:** The study confirms the application of Social Exchange Theory, and demonstrates that when suitably rewarded in economic and socio-emotional (recognition and awards) fashion, the employee feels obliged to reciprocate and contribute to the firm’s success (Cropanzano & Mitchell, 2005).

5.4. Managerial implications and practical applications

Firms increasingly use employer branding to build a talented workforce in competitive labour markets. The studies have shown that employer branding orientation is positively related to firm performance (Tumasjan et al., 2016). Our findings have multiple practical implications at the strategic and tactical level for the HR Managers. These are explained below:

- **Strategically help HR manage Employer Brand Perception:** First, it provides a distinction on the topic of importance for the employee during the

time of contraction (e.g., Learning and Development, and People Orientedness) and during the growth period (i.e., Career Growth, Fun at Work, and Rewards). Therefore, with this knowledge about the specifics of the topic, considered important by the employee, the HR practitioners can devise a talent management strategy to prioritise and address the areas of improvement to enhance employer brand image at the policy level.

- **Tactically help Talent managers with right motivators for talent acquisition and retention:** The Talent recruitment managers can now understand the motivators for the employees and prospective candidates and accordingly convince to retain and grow talent in the organisation.
- **Proactive Approach towards Employee Satisfaction:** HR can become more analytical in orientation by developing and measuring the employer brand perception metrics **more objectively** and more accurate i.e., taking a more data-driven approach, complementing the annual employee engagement surveys, and longitudinally studying the specifics of the employee perceptions and creating an employer branding strategy.

6. Limitations of the study

The limitations of this research are listed below.

First, some inherent limitations with the (natural experiment method set up) dataset in terms of availability of the metadata (information related to the demographic characteristics) and the volume of data available during the selected period. Both of these are beyond the researcher’s control as the Glassdoor reviews are anonymous in nature with no identification related to age, gender, work experience level, and data volume availability (number of reviews over the time period chosen) that may impact the overall data distribution characteristics.

Second, in terms of applying the structural topic modelling technique on the corpus for text interpretation, we have analysed the review as a combination of text mentioned in the Pros and Cons sections of the employee’s review. As the text interpretation is context (pros or cons) agnostic the results must be interpreted as dominant themes frequently discussed (and not necessarily the pros or cons of any particular phase).

While there are no inferences made specific to any age group or positive or negative aspect of the factors found during the results, the broader generalisation of the result may be restricted and impacted by the limitation of the study and the readers discretion is requested.